Burma Economic Planning Board.

TWO-YEAR PLAN

OF

Economic Development for Burma

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FOREWARD.

The Two-Year Plan of Economic Development which is now issued for publication has an interesting historical background.

On June 6, 1947, our late Bogyoke U Aung San, Deputy Chairman of the Executive Council, convened the first Rehabilitation Conference in the history of post-war Burma at the Sorrento Villa, Prome Road, Rangoon. To this Conference were invited leaders in every walk of life, statesmen, officials, experts and specialists in various fields of public economy, with a view to co-ordinate and concentrate on the speedy rehabilitation of the country and getting its economy back to pre-war level. The Conference was then divided into five special panels or sections as follows :—

1. Statistical Section.
2. Planning Section.
3. Finance Section.
4. Ways and Means Section.
5. Co-ordination Section.

A good deal of statistical and other valuable material was collected during the sessions of these conferences but the tragic assassination of our national heroes, including our late Bogyoke, who was at the head of the Co-ordination Section, left the works unfinished. This, however, was quickly taken up as soon as possible, when the Economic Planning Board was instituted, charged with the function of drawing up a restricted Two-Year Plan of Economic Development. The Plan incorporates most of the valuable material from the "Sorrento Plans", but not all ; and within the short space of two months the Two-Year Economic Development Plan was finalized. At the present moment the Plan is being executed by various Ministries of the Government.

It is hardly necessary to emphasize the need for a consecutive planning of our economic system now that we have regained our political freedom, considering the great time lag between our country and other countries whose economies are comparatively more advanced. The present Two-Year Economic Development Plan envisages to put this matter right in a limited period of two years with special emphasis on first things first particularly after a careful analysis of men, materials and other resources readily available in the period of the Plan. It is therefore a challenge and a call to all patriotic citizens of our nation to render their utmost co-operation and assistance from their respective assignments to make the Plan a success.

U MYA,

Hony. Vice-President,
Economic Planning Board.

RANGOON, *the 1st April 1948.*

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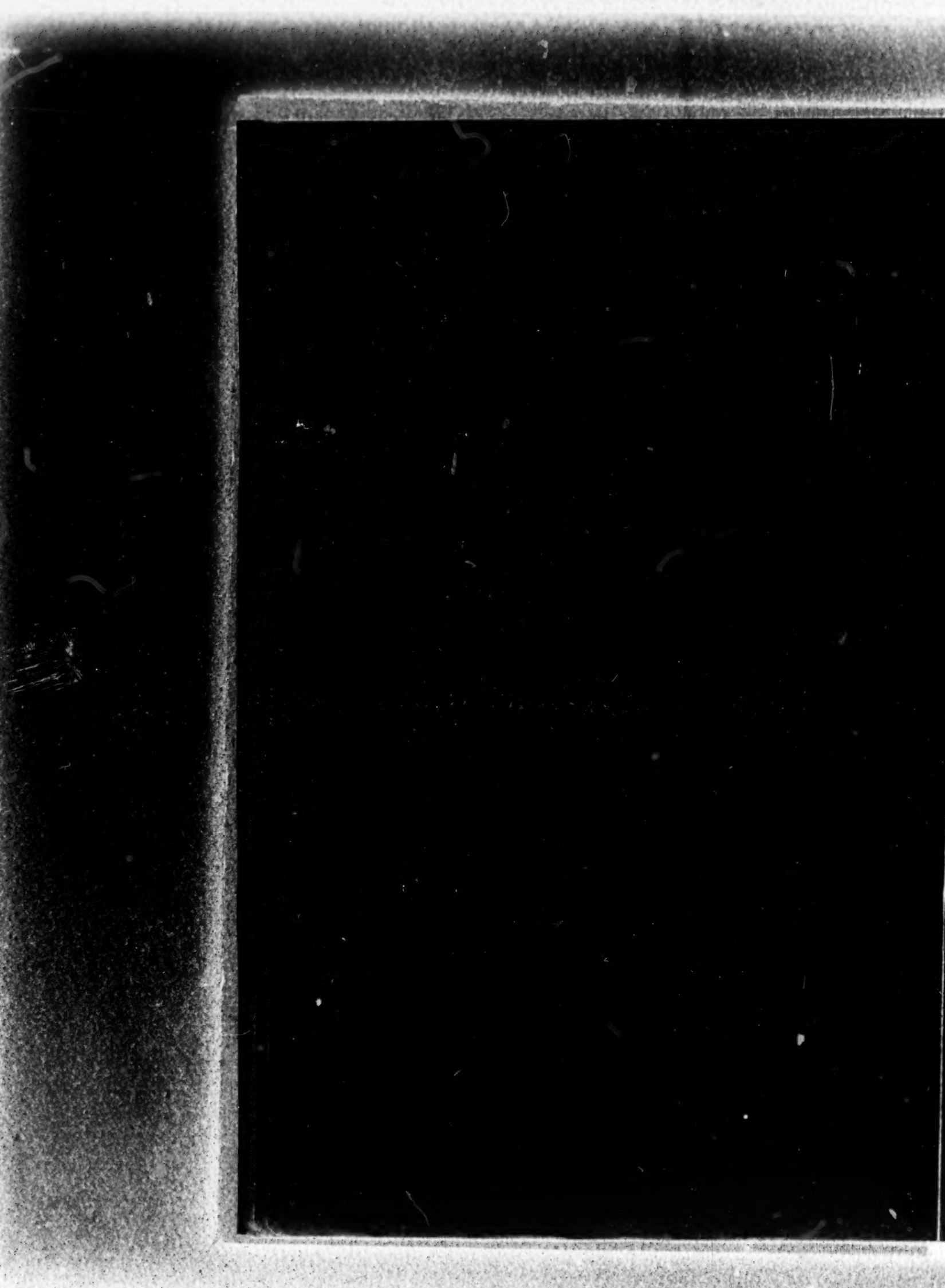

TWO-YEAR PLAN

OF

Economic Development for Burma.

I.—INTRODUCTORY.

Section 41 of the Constitution of the Union of Burma provides :—

> "The economic life of the Union shall be planned with the aim of increasing the public wealth, of improving the material conditions of the people and raising their cultural level, of consolidating the independence of the Union and strengthening its defensive capacity."

During the period in which she formed a part of the overseas dominions of Britain, Burma has been the scene of intense economic activity in certain spheres. Thus, her paddy lands were extended at great speed until within less than half a century she became the biggest exporter of rice in the world. Oilfields of respectable size and production were developed ; lead, silver, tin and other minerals were mined in large quantities, and the forests contributed in a great measure to the national wealth. But this period was dominated by the ruling doctrine of *laissez faire*, and the nature and extent of the economic development was determined almost exclusively by the self-interest of foreign capitalists and *entrepreneurs*. Hence the paradox that while the national wealth of the country undoubtedly increased manifold, the lot of the villager remained unchanged and he continued to exist just beyond the starvation level and to live in squalor and extreme poverty. While public wealth increased, the material conditions of the people saw little improvement.

Our destiny is once again in our hands and with it the opportunity of developing an economy suited to the needs of the country and the genius of our people. Political independence has been won after hard and prolonged struggle and the supreme sacrifice on the part of many, and it is now the duty of the nation to consolidate that independence and extend it to the economic sphere—to create an economy which will ensure that a fair share of the fruits

passes on to the common man. This Plan of Economic Development for the first two years of our independence is drawn with a view not merely to speed our recovery from the devastation caused by war but also to lay the foundations of a balanced economy and increase our national wealth in a manner which will secure for the villager a higher standard of living than has been his lot hitherto.

The lethargy of a hundred years cannot however be shaken off over-night, nor can the pattern of colonial economy imposed upon us for a century be transformed completely within a period of two years. The world-wide shortage of materials and technical personnel will act as a continuous drag on any programme of development that may now be embarked upon and the full realization of the policy of economic development embodied in the Constitution of Free Burma must thus be preceded by a large amount of preparatory work in the form of economic and scientific research, investigations into the sources and scope of our national wealth, training of personnel and above all the creation in the masses of an attitude of mind inducive to hard work and whole-hearted co-operation in the task of improving their material condition. The Plan therefore provides for the maximum development which Government consider practicable during the next two years, bearing in mind our limitations of men and resources; and—equally important—for laying the foundations of a planned economy and for transforming Burma into a country where the Welfare of the common man constitutes the main motive of State activity. The Plan is not ambitious, and does not cover every sphere of our economic activity. There are obvious gaps, and lack of definiteness in many of the objectives. But conditions essential to the evolution of a comprehensive and fully co-ordinated plan of economic development—*e.g.*, data relating to our natural resources, expert personnel and knowledge, administrative organization, etc.—are sadly inadequate, and it will take years to remedy these deficiencies. Independent Burma cannot however wait for the removal of these handicaps before stating her main objectives and taking the first steps towards achieving them. The present short-term Plan of Economic Development provides for a programme of activity which if carried out faithfully will not merely secure a substantial increase in our national wealth but start the country on the path to evolving a socialist economy where every son of the soil will have equal opportunity to

live a full life and no section or individual will be exploited for the benefit of another. The actual developmental work proposed is important, but the successful completion of the surveys, investigation, research and training provided for is equally essential, and vital from a long-term point of view. Both parts require equal emphasis, and the same firm determination to see through no matter what the odds. The Plan defines the initial steps that must be taken for consolidating economically the independence which we have won and for the achievement of which so many of our leaders have laid down their lives, and it is the duty of every section of our people to co-operate in its fulfilment.

II.—AGRICULTURE.

Agricultural Policy.

The policy of Government in regard to Agriculture is three-fold :—

(*a*) To secure a re-distribution of the agricultural land of Burma with a view to eliminating land-lordism and return alienated land to the peasants and to prevent the peasants from further alienation of land which, if allowed, would fall into a vicious circle.

(*b*) To evolve an agricultural economy which will ensure that land is cultivated and organized on modern and scientific lines and that the cultivator who constitutes 65 per cent of Burma's population gets a fair share of the produce of the land, is protected against the caprices of a fluctuating market and ultimately achieves a standard of living which will enable him to live a full life and enjoy the amenities of modern civilization.

(*c*) As an immediate target, to increase agricultural production so that Burma will recover her pre-war position as an exporter of rice in the shortest possible time and become self-sufficient in as wide a range of other crops as possible.

(*a*) Re-acquisition of Alienated Land.

Section 30 of the Constitution of the Union of Burma declares that " the State is the ultimate owner of all lands." A century of foreign rule has disrupted our economy in many directions, but perhaps the most serious effect has been in the direction of agricutural land ownership. From complete ownership by the State and the almost complete absence of large landlords, 48 per cent of occupied agricultural land in Lower Burma and 14 per cent in Upper Burma had by 1939 found their way into the hands of non-agriculturists ; the extent of alienation in the following districts gives a clearer picture of the seriousness of the situation :—

Pyapôn ...	...	71 per cent.
Hanthawaddy	...	70 "
Insein ...	...	68 "
Pegu ...	...	67 "
Myaungmya	...	62 "

The re-affirmation of the principle that the State is the ultimate owner of all land is thus timely, and it shall be the duty of Government to give effect to this principle by the evolution in the shortest possible time of a scheme of acquisition of alienated land and giving effect thereto.

(*b*) Re-organization of Agricultural Land.

The scheme of acquisition shall provide fully for their re-distribution amongst the peasantry with the objective of creating in Burma an agricultural economy on modern and scientific lines—of an economy which will transform the village in Burma into a social unit where every individual lives a full and healthy life and enjoys a fair share of the amenities of modern civilization. This ideal cannot however be realized immediately or within a short period of time, for the determination of the type of agricultural economy and organization which will result in the achievement of this objective must be preceded by a vast amount of experiment and research, technical, sociological and economic, particularly in regard to mechanized farming on a collective basis. These investigations must however be undertaken with the minimum of delay, and neither social and economic prejudice nor vested interests shall be allowed to delay the evolution of a plan for the full realization of this ideal. Pending such a plan however Government shall consider immediately a programme of re-distribution of land among agricultural tenants.

In order to fulfil the target set for cultivation of various crops under the General Agricultural Cultivation Drive Plan, Government must assume powers to take over at least temporary possession of lands which landlords fail to rent in time for the following agricultural season. Lands taken over by Government temporarily should be made available for renting out as State tenants to *bona fide* cultivators and persons with means for undertaking an economic holding, through such local organizations as Government may constitute for the purpose.

(*c*) Increased Production.

Before the War, Burma was the largest exporter of rice in the world, exporting about 3½ million tons a year. The export of rice accounted for about 50 per cent of her total export trade. Over 12 million acres of her agricultural land

was cultivated with paddy, and she produced 6 million tons of rice every year. As against these figures, the acreage under paddy during 1947-48 was about 9 million acres, and her exportable surplus of rice for this year is estimated at $1\frac{1}{2}$ million tons. The rehabilitation of Burma is thus largely a problem of rehabilitating her paddy cultivation and achieving as soon as possible her pre-war exportable surplus in this important food crop. In the circumstance of the present world-wide shortage of food-grain—a condition which is expected to continue for several years to come—the rapid increase of Burma's rice production is a matter of world-wide importance and should be treated as a world problem. The handicaps are severe, particularly in respect of shortage of cattle ; but no pain shall be spared to overcome these handicaps in our efforts to feed a hungry world.

The following minimum targets shall be achieved in regard to the production of rice :—

Season.	*Acreage (matured)* (in million acres).	*Exportable Surplus* (in million tons).
1947-48 ...	9·00	1·76
1948-49 ...	10·00	2·18
1949-50 ...	10·75	2·46
1950-51 ...	11·50	2·94
1951-52 ...	12·00	3·18

The achievement of the above targets will require a carefully worked out and fully co-ordinated cultivation drive plan, based on the allocation for purposes of cultivation of unrented land to agriculturists with the objective of utilizing to the maximum fallow and untenanted land. A plan covering all paddy lands in Lower Burma, Government irrigated areas and the wet zone in Upper Burma and other crops is being worked out by the Ministry of Agriculture and Forests and this should be carried out as fully as possible.

An appreciable proportion of the two million acres of paddy land which are still fallow in Lower Burma has reverted to jungle, and their reclamation will be expensive. Government shall assist in this work by allocating one crore of rupees during the coming season for issue of Land Improvement Loans, which will also cover issue of loans for the reconstruction of sea bunds fallen into disrepair, particularly in Thatôn, Pegu, Hanthawaddy, Pyapôn, Myaungmya, Bassein and Akyab Districts.

In regard to other crops, the main necessity is increased production with a view to achieving self-sufficiency and minimising imports.

In the case of these crops, the objective should be not only to achieve self-sufficiency but also to increase production in the case of crops which find a ready market abroad (*e.g.*, pulses, etc.).

Edible Oil.

Pre-war production averaged :—

—	Acreage	Outturn (in tons).	Oil Production (in tons).
Sesamum	1,500,000	60,000	22,000
Groundnut	700,000	190,000	40,000
Total ...	2,200,000	250,000	62,000

This was approximately 7,000 tons short of our internal consumption, which had to be made good by import. The production for 1948-49 is estimated at 40,000 tons of oil, leaving a deficit of 30,000 tons. Concentrated efforts shall be made not merely to achieve the pre-war production but also to eliminate imports altogether, and the following target figures shall be achieved :—

	Tons.	*Deficit.*
1949-50	50,000	20,000
1950-51	60,000	10,000
1951-52	70,000	*Nil*

Cotton.

The production of cotton before the war was 100,000 bales, of which approximately 90,000 bales were exported. Efforts shall now be made not merely to achieve the pre-war level of production but also to replace gradually the lower grades then produced by the improved Mahlaing No. 3 in accordance with the following programme :—

Season.	Bales.	M.3	Others (mainly *Wagales*)
1947-48	25,000	440	24,560
1948-49	40,000	1,760	38,240
1949-50	60,000	7,040	52,960
1950-51	80,000	28,160	51,840
1951-52	100,000	100,000	*Nil*

The policy in regard to production of cotton must be fully co-ordinated with the industrial policy, particularly in regard to the establishment of spinning and weaving factories.

Beans and Pulses.

Average production before the War, internal consumption and surplus exported were as follows :—

— (1)	Beans. (2)	Grams and Peas. (3)	Sundry. (4)	Total (5)
	Tons.	Tons.	Tons.	Tons.
Average Poduction ...	83,000	98,000	69,000	250.000
Internal Consumption ...	53,000	53,000	44,000	150.000
Export	30,000	45,000	25,000	100,000

The following targets shall be achieved :—

Season.	*Production,* Tons.
1947-48	150,000
1948-49	200,000
1949-50	225,000
1950-51	250,000

Onions.

The following targets shall be achieved :—

Year.	Acreage.	Production.	Deficit.
		Tons.	Tons.
1947-48	25,000	175,000	25,000
1948-49	27,000	189,000	11,000
1949-50	28,500	199,500	500
1950-51	29,000	203,000	...

The cultivation of onion in kitchen gardens shall be encouraged.

Chillies.

The following targets shall be achieved :—

Year.	Acreage.	Production.	Deficit.
		Tons.	Tons.
1947-48	110,000	29,500	6,500
1948-49	120,000	32,100	3,900
1949-50	127,000	34,200	1,800
1950-51	132,000	35,500	500
1951-52	135,000	36,200	...

White Sugar.

The following targets shall be achieved :—

Season.	Factory.	Production.	Deficit.
		Tons.	Tons.
1947-48 ...	Zeyawaddy ...	10,000	30,000
1948-49 ...	Zeyawaddy ...	20,000	17,500
	Sahmaw ...	2,500	
1949-50 ...	Zeyawaddy ...	20,000	10,000
	Sahmaw ...	7,500	
	Pyinmana ...	2,500	
1950-51 ...	Zeyawaddy ...	20,000	500
	Sahmaw ...	12,000	
	Pyinmana ...	7,500	
1951-52 ...	Zeyawaddy ...	16,000	*Nil*
	Sahmaw ...	12,000	
	Pyinmana ...	12,000	

The production of sugar requires to be carefully regulated, so that no single factory shall acquire control of the market. The production at Zeyawaddy Sugar Factory will thus be limited to 16,000 tons, but as a temporary measure to reduce imports it will be permitted to produce more than this figure during 1948—51.

Arrangements in regard to the acquisition of a controlling interest by Government in the Sahmaw Factory shall be completed as soon as possible. Failing this a State-owned Factory shall be set up. Another State-owned Factory shall also be set up at Pyinmana. This is estimated to cost Rs. 40 lakhs. Production of sugar on cottage industry scale shall also be encouraged if economically feasible.

The price of sugar should be stabilized at twice the pre-war figure by 1950-51, and a fair price for sugar-cane purchased by factories shall also be fixed.

With a view further to increase the acreage under cultivation and efficiency, the following further measures shall be carried out :—

(*a*) The State Colonies Department shall be re-organized on a proper basis by the end of 1948, with particular reference to reconstruction of accounts, revision of bye-laws and resettlement of lands with the object of stopping plural holdings and arranging available holdings into economic holdings.

(*b*) Conditions of grants, leases and licences shall be reviewed and the possibility of terminating them and allotting them to *bona fide* cultivators under State tenancy shall be considered.

(*c*) With the exception of land now in possession, no further land-holder's right shall be acquired in future and the Lower Burma Land and Revenue Act shall be amended accordingly.

(*d*) Accretions from the sea shall be distributed, and reclamation of new land and lands damaged by the sea assisted by the grant of land improvement loans, remission of land revenue for a certain period, grants-in-aid and other necessary facilities (including protection). The distribution shall be done on a collective or co-operative basis.

Large tracts of Ayadaw lands in Upper Burma are now in the hands of non-agriculturists. These lands should be resumed by Government. No question of compensation arises as they are all State land. The resumed lands should if possible be made available for experimental mechanized farming and the remaining lands for distribution under State tenancy to *bona fide* cultivators through Co-operative Societies.

(*d*) Regulation of Rent.

A Bill is being enacted to regulate the rent of paddy lands for the season 1947-48 at double the land revenue inclusive of land revenue, the landholders being responsible for payments of land revenue to Government. Its extension to other crops in Burma shall also be considered. The regulation of rent should also extend to the season 1948-49. This will enable the tenant cultivators to acquire sufficient capital to finance agricultural operations during both years.

This should be supplemented by effective propaganda amongst cultivators to save sufficiently.

(e) Agricultural Credit.

There is an imperative need for State credit in agriculture, the reasons being—

(*a*) credit is almost universally needed by cultivators ;
(*b*) lightening of its cost will be of benefit to all classes of rural community ;
(*c*) provision by private credit in the past led to the serious problem of land alienation ;
(*d*) existence of foreign capital in the past resulted in heavy losses to the country of profits remitted abroad ;
(*e*) the private credit system has more or less broken down ;
(*f*) it is definitely unsound tnat agricultural credit should remain dependent on private enterprise ; and
(*g*) higher rates of interest for agricultural credit results in undesirable diversion of capital from industry to agriculture.

The policy of Government in regard to Agricultural Credit shall be directed to provide, as far as possible, State credit for agricultural finance. So long as private money lending is regulated by Government, complete disappearance of the money lender is not available. Credit should correspond with the needs of the borrower rather than with the value of the security a cultivator is able to offer. Use of loans should be capable of verification.

In order to give effect to the above objectives :—

(*a*) A committee should be constituted at an early date to report to Government by June 1948 on the formation of a Central State Agricultural Bank to enable Government to have it in operation by early 1949.

(*b*) In order to expedite the issue of agricultural loans which should be available in time for their work, the procedure in regard to grant of Credit shall be simplified.

(*c*) Despite the need to fix the rate of interest at a level which should cover the abnormal risks of default, the rate of interest for agricultural loans should remain at $6\frac{1}{4}$ per cent per annum as long as direct State credit continues.

(*d*) In order to afford cultivators opportunity to market their produce in a profitable manner instead of having to dispose of in a hurry to discharge their financial

obligations as at present, the date of repayments should be 31st March instead of 15th February.

(*e*) Certain percentage of the loans should be issued in kind. A small *Ad Hoc* Committee has been appointed to submit recommendations to Government.

(*f*) Loans will be issued at the rate of Rs. 12 per acre of which Rs. 3 will be issued on the security of wages payable by harvest to seasonal labour. Rs. 9 per acre to be issued to a cultivator will be issued in two instalments instead of the existing instalments of Rs. 5 for the first, Rs. 3 for the second and Rs. 4 for the final. Intensive and extensive propaganda will be necessary to urge cultivators to put to use savings which they will receive from the regulation of rent for the coming season and not to depend entirely on Government finance for agricultural operations during the next season.

In issuing Land Improvement Loans, local volunteer organizations should be invited to carry out the works more or less on contract basis paying out as wages 60 per cent of the value of the contract and the other 40 per cent to be used for general welfare by the organizations.

Cattle and implement Loans.—As in the case of seasonal loans the proposed Village Agricultural Committees will submit recommendations for the issue of cattle and implement loans repayable to Government in three or four yearly instalments. With the proposed constitution of a State Central Agricultural Bank by 1949 it will be possible to launch a scheme for cattle insurance. This is a long-term programme which will be taken up by the proposed Bank.

The Co-operative and State Colonies Departments will issue loans as in the past. The rate of interest on Government loans issued to these Societies should be on a preferential basis, *i.e.*, $4\frac{11}{16}$ per cent or 75 per cent of $6\frac{1}{4}$ per cent, *i.e.*, nine pies per annum instead of one anna on a rupee per annum.

Funds.—With the likely drying up of private credit for agricultural finance, it will be necessary to provide for the the season 1948-49 a sum of at least Rs. 5 crores as Agricultural Loans. If by that time the Agricultural Bank comes into existence this provision will form the advance by Government to the Bank carrying interest at a suitable rate.

(*f*) Crop Production—Policy and Methods.

Industrial Development will offer prospect of greater natural wealth than primary production alone is likely to afford. The adjustment of agriculture and industry in the country will require careful planning. But the remarkable dependence of Burma on the rice crop not only exposes the national economy to the fluctuations of the world market in a single commodity, but also restricts the period of useful employment of the majority of agriculturists. Measures should therefore be taken to—

(*a*) encourage double cropping ;
(*b*) introduce new crops which might be grown with profit, *e.g.*, cigarette tobacco, mustard seeds, sun-hemp, tree cotton, European fruits in hill areas, etc. ;
(*c*) expand production of deficit crops, such as chillies, onions, oil-producing crops, wheat, wood pulp producing trees, etc ;
(*d*) intensive propagation and distribution of pure seed grains, particularly paddy ;
(*e*) increase the number of demonstration plots ;
(*f*) enlarge farm schools ; and
(*g*) systematic use of manure, such as ammonia phosphate, bone-meal and cow-dung.

(*g*) Agricultural Labour.

The condition of large classes of seasonal and casual labourers employed in agriculture and of the rural population is entirely unsatisfactory. Formulation of a long-term policy covering social service, social reconstruction, improvement of wages and the development of subsidiary rural industry is therefore necessary. This policy should be evolved in close co-ordination with the policy in regard to industrial labour. When the Agricultural Bank is established credit should be provided to enable cultivators to pay monthly wages to hired labour. In the meantime, agricultural loans should be issued on the security of wages payable by a tenant to a labourer at the time of harvest at the rate of Rs. 3 per acre to a seasonal labourer.

(*h*) Control and Stabilization of Price.

Paddy may be regarded as the currency of the country, and violent fluctuations in prices will create a chaotic state

of economy in the country. Prices of other crops are more or less determined by the price of paddy. The internal price of paddy should be brought down gradually and with steady improvement of agricultural finance it should be possible to stabilize the internal price at about 175 per cent or 200 per cent of pre-war prices by 1951-52. The stabilization will depend naturally on the world markets and with a view to protect the interests of the cultivators from any violent fall in prices in another two or three years time Government should from now formulate a plan to stabilize prices based generally on the lines of action taken in Japan before the war and now in Australia. It is a long-term plan which needs the most careful examination by experts, as such an attempt would require to be backed up with funds which may run into many crores of rupees. For the time being the regulation of trade through State purchase by the State Agricultural Marketing Board should continue.

For the year 1948 the State Agricultural Marketing Board should control all the exports of agricultural products from Burma. In cases where the Board cannot undertake direct purchase or through agencies, the Board should make arrangements to export certain agricultural products on F.O.B. basis. This control will enable the State to obtain profits which otherwise would go to private individuals.

Marketing.

Research and Investigations.—The Marketing of agricultural produce provides a field in which much can be done for the financial betterment of the cultivator; when relieved of onerous rents and interest charges the small producer is still economically at a disadvantage where weights and measures are inconsistent or ill-defined where a premium for superior quality is not assured and where quoted prices are subject to obscure, if not arbitrary, adjustments. The Agricultural Department should, as soon as the staff is strengthened, re-organize the Marketing Section of the Department under the charge of an expert for conducting necessary research and investigations. Much headway had been made in the research and investigations by the Marketing Section of the Agricultural Department in pre-war days and it should be possible for the Marketing Officer to have complete records within a reasonable space of time.

Standardization of Weights and Measures.

An excellent start has been made in the market surveys of the Agricultural Department and the standard (9-gallon) basket was rapidly ousting other local measures. The first task of the Marketing Section should be to extend the use of the standard basket, for it is the universal unit in the agricultural market and it should proceed to establish similar standards for units of weight in common use. The feasibility of introducing the decimal system of Weights and Measures should be considered.

Controlled markets should be established where conditions admit of centralized buying and selling.

(i) Experimental Mechanized Farms.

The effective implementation of the policy of evolving as a long-term measure an agricultural economy on modern and scientific lines will require that experiments are conducted on a full and adequate basis into the feasibility of organizing all our agricultural land into collective farms based on mechanized cultivation. Serious consideration must be given to the conversion of the cattle economy handed down to us by our forefathers to a mechanized economy, for if this were feasible and proved to be suited to our national character and social structure many of the problems that now face agriculture—*e.g.*, credit, use of expensive fertilizers, lack of co-operative methods and principles, shortage of cattle and labour, bulk marketing, etc.—will disappear. Immediate efforts must therefore be made to set up eight Experimental Mechanized Farms in various areas for various crops on fully collectivized lines, each farm being of 2,000 to 3,000 acres. The land to be so used must first be cleared of all private tenants—the land being acquired by Government if necessary—and a model farm with a model village set up. The farm would be worked on recognized collective farm lines, and in the first instance put in the charge of a person genuinely interested in this kind of work. Details such as control, appointment of technical staff to look after the tractors, setting up of workshop, etc., should be worked out by the Agricultural Department, but immediate action is necessary if any worthwhile results are to be achieved in the near future. It may be difficult to obtain the necessary mechanical equipment owing to the dollar position and it will be almost impossible to obtain any equipment if efforts are confined to merely routine enquiries

as to whether the equipment is available. Efforts at the highest level would be necessary, and the contribution Burma will be able to make to the world food supply by rationalizing her agriculture should be stressed. The tremendous possibilities of the above experiment in regard both to augmenting the world supply of food and improving the standard of living of our people should be emphasized and fully explained, and every effort made to obtain the equipment necessary for at least two collective farms in time for the 1948-49 agricultural season. The farms should in any case be set up during the 1949-50 season at the latest.

The cost of the capital equipment for one farm is estimated at Rs. 2,64,000 (*plus* Rs. 1 lakh for ten sets of tractors and implements for technical experiments), and the running cost at Rs. 2,50,000 per year.

(j) Establishment of Tractor Stations.

In order to bring back certain culturable waste lands under profitable cultivation, investigations should be conducted by the Agricultural Department with a view to setting up Tractor Stations in various parts of the country. These Tractor Stations will be concerned primarily with the reclamation of lands, such as jungle clearing, forest clearing, bunding, opening drainages, etc.

(k) Institute of Agricultural Engineering.

Mechanized cultivation has been rendered difficult, particularly in Lower Burma, on account of heavy rains. No country in the world has as yet perfected what is generally known in Agricultural Engineering as mechanized wet cultivation. In order to undertake experiments effectively to produce mechanical equipment suitable for cultivation under various conditions for different crops in the country, a scheme should be drawn up by the Agricultural Department to open an Agricultural Engineering Institute in Burma on the lines as those already in existence in other countries.

(l) Bureau of Agricultural Information.

The general prevalence of ignorance regarding knowledge of agriculture amongst the rural population has rendered general progress impossible. It cannot be

disputed that the importance of knowledge of modern agriculture with its scientific improvements for quality and quantity will go a long way to increase the national wealth in the country. The promotion of education on subjects connected with rural economy, such as Rural Credit, Co-operation, Stock-breeding, etc., can best be undertaken not only, as envisaged in another paragraph, through the expansion of existing Farm Schools at the major Farms but also by opening an Information Bureau for Rural Economy under the guidance of retired Agricultural, Co-operative and other officials. Such an Information Bureau can undertake this important work effectively. It is not advisable that the importance of knowledge of these technical matters should be undertaken through the usual channels of the ordinary Information Bureau.

III.—FORESTS.

Section 44 (2) of the Constitution of the Union of Burma provides :—

> " The State shall direct its policy towards exploitation of all natural resources in the Union by itself or local bodies or by peoples' co-operative organizations."

The Forests of Burma are a valuable national asset and as such, shall be safeguarded for all time by State ownership and management. The policy of Government in regard to the exploitation of the Forests shall be directed towards optimum economic development consistent with proper and scientific conservation. The importance of Forests to the national economy of Burma is apparent from the following figures :—

Quinquennial period	Average annual.				
	Outturn in tons of 50 cubic ft.		Revenue.	Expenditure.	Surplus.
	Teak.	Other timbers.			
(1)	(2)	(3)	(4)	(5)	(6)
			Rs.	Rs.	Rs.
1924—1929 ...	486,439	532,50	2,12,25,243	89,03,954	1,23,21,289
1929—1934 ...	393,291	341,518	1,31,02,677	70,82,798	60,19,879
1934—1939 ...	467,836	463,959	1,49,90,252	63,87,987	86,02,265

In undertaking exploitation by the State, therefore, the supreme importance of working on scientific lines with due regard to long-term conservation cannot be over-emphasized. The tradition of efficient and scientific working which exists in Burma—the extent and nature of which can be seen from the fact that while in 1900 only 10·6 per cent of the Forests were exploited under working plans, in 1940 83·5 per cent was so covered—shall be maintained unimpaired in the future also.

The application of the policy of nationalization will be greatly facilitated by the fact that all the major leases have expired and will not be renewed. This policy will be implemented by taking over for extraction under State control—departmentally on commercial lines and/or through indigenous traders as extraction agents of Government—one-third of the total of teak area under operation and marked for operation during the first year of the Plan. For this

purpose, accessible areas now operated by foreign and indigenous lessees in Middle Burma shall first be taken up. During the second and subsequent years, the remaining two-thirds will also be operated by the State, the existing lessees being retained as extraction agents if necessary. A programme shall be drawn up to replace in due course European and Burman lessees by means of incisions.

Departmental Extraction.

(*a*) Expansion of departmental extraction on a commercial basis should be examined ;

(*b*) In areas where departmental extraction cannot be at present conducted the extraction of teak and timber should be on contract basis at a rate per ton of log extracted.

(*c*) Costing shall include an element to cover royalty rates prescribed by Government.

Milling.

The carrying out of the above plans will require the extension of State control to conversion of timber.

Export Trade.

The export trade shall continue to be controlled by Government.

Marketing.

The question whether marketing on a world-wide basis can be undertaken by a Government concern requires to be examined.

Experts.

Government will probably need five experts, as follows :—

(1) An expert to advise Government generally on forest policy and administration.
(2) An expert for working plans.
(3) Two experts on extraction and utilization.
(4) An expert on export control and marketing.

Detailed proposals for their recruitment, etc., shall be worked out as soon as possible.

TARGETS.

The following targets in regard to forest produce shall be fixed and realized :—

Season.	*Round Log.*	*Sawn Timber exported.*	*C.I.F. Value exports.*
	TEAK.		
	Tons.	Tons.	Rs. (Lakhs)
1947-48 ...	170,000	80,000	400
1948-49 ...	230,000	105,000	504
1949-50 ...	290,000	130,000	598
1950-51 ...	340,000	165,000	726
1951-52 ...	400,000	190,000	798
	PYINKADO, PADAUK, THITYA-INGYIN.		
1947-48 ...	5,000	...	20
1948-49 ...	6,000	...	22·8
1949-50 ...	7,000	...	25·2
1950-51 ...	8,000	...	27·2
1951-52 ...	10,000	...	32
	IN-KANYIN.		
1947-48 ...	35,000 Sawn	...	105
1948-49 ...	45,000 ,,	...	126
1949-50 ...	53,000 ,,	...	139
1950-51 ...	60,000 ,,	...	144
1951-52 ...	68,000 ,,	...	150
	OTHER SPECIES.		
1947-48 ...	2,000 Sawn	...	5
1948-49 ...	1,500 ,,	...	5·75
1949-50 ...	3,000 ,,	...	6·3
1950-51 ...	4,000 ,,	...	7·6
1951-52 ...	5,000 ,,	...	8·5
	FURNITURE		
1947-48 ...	...	...	25
1948-49 ...	...	...	35
1949-50 ...	...	...	50
1950-51 ...	...	...	75
1951-52 ...	...	...	75
	VENEERS AND PLYWOOD.		
1948-49 ...	...	...	15
1949-50 ...	...	...	20
1950-51 ...	...	...	30
1951-52 ...	...	...	40
	POTENTIAL EXPORT VALUES—TEAK AND TIMBER.		
1947-48 ...	...	...	555
1948-49 ...	...	...	708·55
1949-50 ...	...	...	838·50
1950-51 ...	...	...	1,009·80
1951-52 ...	...	...	1,103·50

IV.—INDUSTRIAL DEVELOPMENT.

The Industrial Development of any country must ultimately be determined by the nature and extent of her natural resources, but the most striking feature in relation to our country is the sad inadequacy of the knowledge we possess tl ereof. A complete survey of our natural resources is therefore a prime necessity, and our ultimate industrial policy can be formulated only in the light of knowledge acquired by such survey.

Immediate steps must however be taken in regard to the rehabilitation of existing industries and the setting up of such new industries as are feasible on the basis of raw materials already known to exist in economic quantities.

Basic and Consumer Goods Industries.

The profit motive and other considerations which usually govern industries in capitalist economy shall not be allowed to determine the development of basic industries in Independent Burma. All such industries shall be established and developed as State enterprise. In regard to consumer goods industries, the profit motive and what is described as "the free choice of Consumers" may be allowed greater freedom—to an extent compatible with the basic features of the Plan. First consideration shall however be given to their development on a state-owned basis, and only if this is not practicable for any reason shall private enterprise be allowed to play a part. It is however essential that development by private enterprise is regulated in a manner which will ensure that it is in consonance with the interest of the country. For this purpose legal powers to control and direct the setting up of industries by private enterprise will be necessary and this question shall be examined and necessary legislation enacted by June 1948. The legislation shall provide for association of indigenous capital, training of indigenous personnel, both technical and administrative, adoption of processes and means of production suited to the genius of the people, avoidance of over-concentration in certain areas leading to unbalanced development, and prevention of undue competition to the detriment of the interests of the country.

Cottage Industries.

The industrial policy of Government must take full account of the part played by Cottage Industries—particularly the weaving industry—in the country's economy. So long as this economy remains predominantly agricultural, so long will Cottage Industries generally and the weaving industry in particular continue to provide the agriculturists with a valuable source of supplementary income and employment during the off-season. The aim of Government's industrial policy shall therefore be to increase the scope and effectiveness of Cottage Industries to the fullest extent, and for this purpose a Small-scale and Cottage Industries Committee consisting of the following shall be set up immediately :—

1. Secretary, Industry and Labour Department.
2. Superintendent of Industries.
3. Superintendent of Cottage Industries.
4. Director of Technical Education.
5. One representative of the Council of Burma Industries.
6. One representative of the Burma Chamber of Commerce and Industry.
7. One Economist, and
8 & 9. Two Non-officials to be appointed by Government, of whom one is to be a representative of the Trade Federation.

The duties of the Board shall be (*a*) to organize the existing Cottage and small-scale industries (*e.g.*, weaving, cotton spinning, umbrella manufacture, toy-making, cosmetics, sugar, leather working, soap, pottery, etc.), into associations on an occupational basis and to obtain adequate data concerning their conditions ; (*b*) to consider the type of aid which should be given to small-scale and cottage industries (*e.g.*, technical assistance and advice, subsidy, loans) ; (*c*) to organize the marketing of the produce of small-scale and cottage industries both within and outside Burma with the objective of eliminating middle-men, ensuring that the producer receives a fair share of the profits, finding foreign markets, standardizing products with a view to maintaining a uniform quality, maximum utilization of the produce of small-scale and cottage industries by Government and quasi-Government Departments, etc. ; (*d*) to investigate the utilization of raw materials in co-operation

with the Industrial Research Institute and establish or assist in the establishment of new small-scale and cottage industries (*e.g.*, manufacture of chemicals, evaporated and condensed milk, canning and bottling, papain from papaya, lithographic printing, scientific instruments, etc.) ; (*e*) to compile a census of local technicians and organize them with a view to their optimum employment in the development of small-scale and cottage industries ; (*f*) to hold demonstrations and exhibitions (including competitive shows) ; and (*g*) to make recommendations for the encouragement of inventors.

New Industries.

Pending the survey of our natural resources and the evolution of a final policy of industrialization in the light of such survey, new industries shall be developed in two phases :—

(*a*) Those for the establishment of which conditions are known to be fulfilled ; action shall be taken to start as many of these industries as possible within the period of the Plan, or where this is not practicable—for such reasons as unavailability of machinery, etc.—to lay the foundations for their establishment within a reasonable period ; and

(*b*) Industries for the establishment of which conditions are favourable but must be preceded by further investigations.

As regards (*a*), the following action shall be completed within the period of the Plan :—

(i) *Tile Factory.*—Every effort shall be made to obtain plant and machinery for this factory so that it can go into production during 1949 at the latest. This factory is expected to produce 60 lakhs of tiles per year at a cost of about one-third of the present market value of imported tile.

(ii) *Paper and Chemicals.*—Immediate action shall be initiated for the purpose of setting up in Akyab District a paper and bamboo pulp factory (combined with the manufacture of certain chemicals essential to the industry) based on the utilization of the bamboos grown in the district and in conjunction with the hydro-electric power available from the Saingdin Falls. A fresh survey of the bamboo resources, the best site for the factory, the hydro-electric possibilities of the Saingdin Falls, etc., is however necessary and the first two items of the survey shall be completed by

the 1st February 1948. The investigation of the Saingdin Falls for purposes of hydro-electric development shall also be undertaken before May 1948 and completed not later that the 1948-49 open season. Simultaneously with the completion of the above surveys, the availability of plant and machinery shall also be investigated and orders placed with a view to setting up the factory at the earliest possible date and obtaining production by 1951.

In conjunction with the Paper Factory, the following chemical industries shall also be set up, the time and location depending on equivalent data for the Paper Factory :—

(a) *Sulphuric Acid*—contact plant with a capacity of 30-50 tons a day ;

(b) *Common Salt*—multiple effect evaporators being used ;

(c) *Caustic Soda and Chlorine*—by electrolytic dissociation of common salt, to be used for pulping and bleaching of bamboo pulp.

(iii) *Spinning and Weaving Factory.*—A Spinning and Weaving Factory with 20,000 spindles and 200 power looms—for spinning average 24S twist yarn using Burma Mahlaing No. 3 cotton and weaving a part of the yarn into plain grey cloth—shall be set up as soon as possible and investigations into the availability of plant and machinery completed and orders placed during the first six months of 1948.

(iv) *Sugar Factory.*—Two Sugar Factories with a total productive capacity of 24,000 tons of sugar per year shall be set up as provided for in the Section on Agriculture.

(v) *Government-Owned Saw Mill.*—A State-owned Saw Mill with a capacity of 30,000 tons of converted timber per year shall be set up in Rangoon during 1948.

(vi) *Kalewa Coal-fields.*—Large deposits of coal exist in Burma, but have so far not been fully investigated. In the Kalewa area, for example, the deposits are estimated conservatively to last for about 70 years at a rate of extraction equivalent to 1,000 tons a day. Though the samples so far tested have not proved satisfactory, experts incline to the view that samples from deeper seams will give better results. Action is now being taken to mine about 100 tons of coal from depth and have it tested carefully. The carrying out of these tests should not be delayed beyond April 1948 and if the results prove satisfactory plans for the development

of the Kalewa Coal-fields on modern lines under State ownership shall be evolved not later than the end of 1948. Work in Coal-fields is however of a highly specialized nature, and extreme care together with the most up-to-date and competent expert advice will be necessary in formulating the plans.

Coal-fields in other areas (*e.g.* Shan States, Shwebo, Henzada, Mergui) shall also be investigated within the period of the Plan.

(vii) *Steel Re-rolling Factory*—A Factory for the utilisation of the scrap metal lying all over Burma shall be set up within the first six months of 1948.

(viii) *Soap.*—Government shall set up a pilot factory at a cost of about Rs. 1,50,000 during the first year of the Plan for the purpose of demonstrating the feasibility of establishing a soap making industry on modern lines in Burma.

(ix) *Dairy Farm.*—A Pilot farm shall be set up in the Shan States during 1948 to demonstrate modern dairy methods and popularizing milk and milk products in Burma.

(x) *Rice Mills.*—Endeavours shall be made to increase and improve milling power in order to cope with increased production, and to reduce the percentage of broken rice produced at the existing mills.

(xi) *Rubber Factory.*—A Rubber Factory which will be capable of producing bicycle tyres and rubber shoes in the first instance shall be set up.

(xii) *Pottery Works.*—It is understood that the Pottery Works at Thamaing is working under a serious handicap for want of up-to-date implements. Investigations shall at once be made to ascertain whether the Works could be improved by installation of modern equipment, and, if it is likely to prove a profitable concern whether it should be taken over by Government to be operated as a State concern.

In regard to industries for the setting up of which conditions are favourable but further investigations are needed, the most important are basic chemical industries. Without these, other processing industries will have to rely on outside sources and thus operate under a great handicap. Investigations shall therefore be undertaken during 1948 for the setting up of factories to manufacture synthetic ammonia, ammonia sulphate, soda ash nitric acid

and industrial explosives, and a long-term plan evolved in relation to Government's financial resources and other considerations.

Similarly also in respect of the manufacture of paints and varnishes, extraction and expression of vegetable oils, industrial alcohol, leather tanning (especially in the Hills), synthetic methanol, acetic insecticides, drugs and pharmaceuticals, rayon and glass. As regards paints and varnishes, a survey of the tungoil production in Burma—the acreage under tung, whether they are fruit bearing and if so an estimate of the quantity, etc.—shall be completed within three months, a decision arrived at within six months on the feasibility of setting up a paints and varnishes factory—and whether this industry should be developed as a large scale industry or a cottage industry. In regard to glass manufacture, investigations into fuel, raw materials, etc., shall be completed and plans drawn up so that manufacture of electric bulbs shall synchronize with the execution of Government's plans for hydro-electric development. Similarly also in regard to manufacture of porcelain insulators. The Industrial Research Institute shall also undertake research into manufacture of synthetic methanol, drugs and pharmaceuticals, rayon and plastics, and investigations made into the kinds of insecticides required in Burma.

A scheme shall also be considered for the deputation of indigenous technicians to study methods and processes in foreign industries, on the lines of Indian technicians sent to the United Kingdom during the War under the Bevin Scheme.

Investigations on above lines and of our natural, technical and financial resources, combined with research at the Industrial Research Institute, should provide enough material for the formulation of a broad-based, long-term plan of industrial development, with a view to embarking on a much more comprehensive programme towards the conclusion of the two-year period of this Plan.

As regards industries which were in existence before the war and now require rehabilitation, every effort shall be made to achieve their pre-war production during the period of the Plan.

Industrial Research Institute.

This Institute should have been established during December 1947, with temporary accommodation in the University or the Harcourt Butler Institute. The Institute

shall be expanded during January 1948 so that it begins operations in three sections :—

(i) Inorganic and Analytical.
(ii) Organic (including Parmaceuticals).
(iii) Cellulose Department.

Such equipment as is necessary and available shall be purchased, and suitable accommodation found, within six months so that the Institute can start off on a firm basis. As soon as this is completed, further expansion shall be considered.

V.—FISHERIES.

Fisheries in Burma have so far been treated purely as a source of revenue and no attempts have ever been made to improve the lot of the fishermen by introducing new fishing methods or new varieties of fish. The inland fisheries are fairly well exploited but their regulation and improvement still require to be tackled on a long-term basis. Steps are being taken by the Agricultural Department to introduce certain new varieties of fresh-water fish and these should be proceeded with. The setting up of hatcheries shall also be investigated. The marine fisheries, on the other hand, have remained undeveloped, although their natural resource is believed to be rich. Major attention will have to be directed first to the marine fisheries in our plan of economic development.

In order to evolve a rational, long-term policy regarding fisheries, special officers and staff are necessary. As a preliminary, proposals in the Agriculture and Rural Economy Department to appoint a Fisheries Research Officer and staff shall be implemented, either on a whole-time or part-time basis. The appointments shall be made within the first three months of the Plan and such further training as may be necessary imparted during the following three months.

During the second half of the first year of the Plan, a pilot scheme for conducting experiments with different types of net shall be launched and a Fishery Laboratory for research work established in or near Rangoon. A preliminary survey of the entire fishery industry shall also be undertaken.

During 1949, a second pilot scheme for fishery training on board a Motor Fishing Vessel shall be launched, use of auxiliary engines on sailing boats fully investigated and encouraged, and a third pilot scheme of a refrigerator fish carrier service introduced. The possibility of building Motor Fishing Vessels in local yards shall also be fully investigated and if proved feasible a start shall be made in this direction before the end of 1949. During this year, the Research Section shall undertake a marketing survey (including utilization of bye-products) and draw up a plan for future development. Scientific research shall also be conducted on the Motor Fishing Vessel used for fishery training. The Fishery Laboratory shall be expanded and a marine biological station established.

The above schemes are estimated to cost (both recurring and non-recurring) Rs. 8,50,000 in 1948 and Rs. 9,50,000 during 1949. The cost is small, compared with the revenue derived from fisheries which during 1946-47 amounted to Rs. 50,00,000.

VI.—TECHNICAL EDUCATION.

The implementation of Government's policy of industrialization with a view to developing a balanced economy in Burma and utilizing to the full our vast natural resources requires as a necessary and indispensable corollary that adequate measures are taken in advance to train in sufficient numbers technicians of all grades to man the industries, and to create amongst the people of Burma a scientific and technical attitude of mind. Foreign experts can of course be obtained for industries and work where highly specialized training and experience is necessary ; such experts are in fact essential if industrialization is to be achieved on a sound and scientific basis. But no industrial enterprise can be manned entirely by foreign personnel, neither would it be in the interest of the country to do so. Indigenous personnel must be trained on scientific and adequate lines for all grades and sectors of industries, and the evolution and execution of a scientific plan of technical education must thus form an essential part of our plan of economic development.

Technicians will require to be trained in three grades—

(*a*) experts and highly trained personnel, to assume the superior direction of industries and their planning ;

(*b*) middle grade technicians—who form the backbone of all industries ; and

(*c*) lower grade technicians, on whose ability and skill largely depends the efficiency of industry and the extent of its contribution to the country's economy.

The grade of experts and techicians mentioned in (*a*) can be trained by (i) conducting advanced courses of study at the University, and making these courses fitted to our economy and policy of industrialization, and (ii) by sending qualified persons for training and advanced studies abroad. Scientific and technical courses in and under the University of Rangoon must be planned with a view to turning out larger numbers of persons with advanced scientific and technical qualifications than were done in the past, and fully co-ordinated to the types of industries likely to be established in Burma pursuant to Government's policy of industrialization. There is at present but little co-ordination and this must be remedied as soon as possible. The

Faculty of Engineering must be organized with the above objectives in view, and the degree and diploma courses previously imparted in the B.O.C. Engineering College and at the Insein Technical Institute brought under unified control. These two Institutes should provide for training double the number of students than were turned out before the War. Courses of study in Applied Chemistry, Chemical Engineering and Geology must also be organized on an adequate basis in the University. Two hundred State scholars shall, if qualified persons are available, be despatched for studies in foreign countries during 1948, and every effort made to secure admission for them in Universities. At least two-thirds must be sent for technical and scientific studies, subjects being chosen carefully by a co-ordinating authority with reference to Government's plans for industrial development. The number should be increased during 1949. Care must however be taken at the same time to send only such candidates as possess certain minimum qualifications and would be able to pursue with profit advanced courses of studies in foreign Universities. The despatch of students who do not possess such minimum qualifications will not only result in gross wastage of public money, but create an extremely unfavourable reputation in foreign countries which will operate to the grave detriment of all State scholars and of Burma itself.

The training of middle and lower grade technicians shall be organized and carried out in accordance with the following programme. The scheme should be participated in by all the Union States.

Full-Time Technical Education.

Artisan Training Centres.

Arrangements are complete for the opening of an Artisan Training Centre in Rangoon on 1st January 1948 to teach the following trades :—

Subject.	*No. of Trainees.*
Carpentry and Joinery	36
Engineering, Fitting and Simple Machining ...	36
Vehicle Mechanics	36
Electric and Power Wiring (including Armature Winding)	24
Radio Mechanics	12
Foundry, Moulding and Smelting	24
Blacksmithy and Boiler Making	36
Total ...	204

This is the maximum number of trades and trainees that can be accommodated in the building so far secured, but the whole arrangement will be reviewed after six months with a view to increasing both trades and trainees—by the introduction of double shifts if difficulties of accommodation and equipment prevent the setting up of a new centre within this period. Most of the equipment for one centre has already been bought and though a certain amount must still be acquired there is enough to make a start and the opening of this Centre must not be delayed beyond the date of our independence.

A similar Centre shall be opened in Mandalay not later than 1st November 1948, and investigations completed for opening two more centres—one in Akyab and one in Taunggyi—within the two-year period of this Plan.

The courses of study in these institutions will require to be re-examined and co-ordinated with the needs of the various industries and electrical development planned for the period of the Plan.

Technical Education in Post-Primary Schools.

Determined efforts shall be made to introduce in our schools a much heavier technical bias than was done in the past. For this purpose, courses in Engineering Science, Applied Mechanics, Electricity and Magnetism, Woodcraft and Metalcraft shall be introduced in six High Schools in the following Centres by June 1948 :—

Rangoon, Mandalay, Taunggyi, Bassein, Moulmein and (if accommodation is available) Akyab. Sixty-four students will be trained in each Centre. Sufficient equipment for four Centres have already been acquired.

The success of this scheme depends on sufficient instructors being trained to conduct courses of studies at the various schools, and it is proposed to obtain them either from amongst present senior teachers who hold science degrees or by fresh recruitment. This scheme of training must be completed during the summer vacation of 1948.

Similar courses of instruction must be introduced in six other Centres in Burma by June 1949, special attention being given to the needs of areas (*e.g.*, Myitkyina, Chin Hills, etc.) which are not easily accessible from other Centres. Sufficient instructors must also be trained well in advance.

Polytechnics.

One Polytechnic Institute shall be opened in Rangoon towards the latter part of 1948. It shall be wide in scope and provide courses of instruction in (*a*) industrial arts such as textiles, leather work and tanning, soap manufacture, etc., (*b*) commercial arts such as photography, stenography, book-keeping, accountancy, secretarial work, etc., and (*c*) domestic science such as house-keeping, cooking, dress-making and other vocations suitable for the female sex. Special emphasis shall be laid on the teaching of new trades and subjects for which facilities are at present not available.

A similar Institute shall be opened in Mandalay during 1949.

Handicraft Schools.

A course of training lasting over a short period—four months—and with the limited objective of teaching each student one particular trade with a view to enabling him to earn a livelihood without having to devote three to five years in acquiring an all-round technical education shall be introduced in Rangoon by March 1948 and suitable accommodation found before that date. Each course will train 20 persons in each of the following subjects :—

Vulcanizing (a complete set of first class equipment has already been purchased).
Sign Painting.
Leather work.
Brush making.

Two courses of studies shall be conducted each year, but the subjects may require revision in the light of the experience gained during the first course.

A similar school shall be opened in Mandalay by March 1949.

Peripatetic Schools.

By 1st March 1948, three Peripatetic Schools composed of Mobile Workshops and staffed by University Engineering Undergraduates and Trade Journeymen in Carpentry, Blacksmithy, Fitting and Turning, and Electrical Wiring shall be sent out to various areas throughout Burma. Each school (Mobile Workshop) will be planned as a University

Engineering Undergraduates Expedition, established for the purpose of surveying the territory covered and teaching villagers and cultivators the benefits of sanitation, making better roads and drainage, brick making, charcoal burning and mechanization, etc. Each school with a personnel of about 25 will be out on tour (the students working in relays) for a period of approximately four months, coinciding with the paddy-off season. Each school is expected to work an area of 100 square miles per expedition. Mobile Workshops for three schools have already been purchased.

The number of schools shall be doubled in 1949 if the scheme succeeds and sufficient personnel and equipment are available.

Part-time Technical Education.

Part-time technical education is complementary to practical instruction and is the essence of vocational training. As universally practised to-day, it takes the form of making available through the medium of evening schools technical knowledge to apprentices who by day learn the practical side of their work in factories and other places of employment.

Evening Schools.

Six courses of studies in civil, electrical and mechanical technology were inaugurated by the Technical Education Department in November 1947, each course extending over three or five years according to the grade. The students will on completion of their course of studies appear for the National and National Higher Certificate Examinations and become fully trained and qualified craftsmen.

These courses originally made preparations to receive 300 students, but the number of applicants was 550 and urgent arrangements were made to accommodate the increased number. The courses are thus extremely popular, and even after the less ambitious and less able students have dropped off the Rangoon area alone may be expected to have to cater for over a thousand students during the two years covered by this Plan—by which time all courses should be fully established. The main limiting factors will be accommodation and equipment, but no effort must be spared to provide for *all* qualified students who apply for admission and continue with their courses of studies. Two more

Centres will thus require to be opened in Rangoon—one before June 1948 and the other by the end of the year—and a third in Insein, from which area about 200 are expected to come. This Centre should be located at the Insein Technical Institute. Adequate provision must also be made for transport to the Centre located at the B.O.C. College of Engineering and Mining, as the classes will be held in the evenings and not all students may be able to find their own means of transport.

Similar Evening Schools shall also be opened in Mandalay by 1st November 1948, and in conjuction with the Artisan Training Centres in Taunggyi and Akyab if sufficient students are likely to come forth.

Technical Education Department.

The programme of technical education proposed for the two years of this Plan cannot be carried out unless its execution is put in the hands of an adequately staffed and equipped Department of Technical Education with a whole-time Director. The present Director is part-time, and it will be impossible for him to carry out the programme on this basis. The Department must be put on a full-time basis by 1st April 1948.

VII.—ELECTRICITY.

Government have already decided on a policy of complete nationalization of all undertakings, whether large or small, and this policy shall be given effect to at the earliest possible date. A comprehensive Electricity Supply Bill is in draft, and its examination shall be completed and the Bill passed into law during the first three months of 1948.

The effective administration of Electricity on a nationalized basis requires the setting up of a Board with autonomous powers, but subject to the control of Government in matters of policy. Government have accepted the necessity for such a Board, and the draft Bill makes provision therefor. A Board shall be set up simultaneously with the passing of the Electricity Supply Act and organized on an adequate basis so that it shall be in a position to discharge its functions fully and efficiently before June 1948.

As a first step towards the implementation of its policy of nationalization, Government have decided to nationalize the R.E.T. and S. Co., Ltd., and negotiations are now in progress. This concern shall be taken over by Government at the earliest possible date, but effective arrangements must be made at the same time to ensure that the efficiency of the concern does not suffer. The taking over must therefore synchronize with the setting up of the Electricity Board which will be responsible for the operation of this undertaking. Departmentalism must be avoided.

Hydro-Electric Development.

Government have also decided to develop to the full the rich hydro-power resources of the country and to base the development of electricity on this source of energy. A start has already been made, and a preliminary survey to prove the Bawgata *Chaung* area near Yunzalin should have been completed by the end of December 1947. After this area has been proved, a more detailed survey will be necessary and this shall be commenced during January 1948 so that as much data as possible is obtained before May 1948. The survey during this period should provide adequate data for the location of dam sites, etc., and access roads and camp sites should also be completed before the rains.

During the rains of 1948—June to November—rain gauging at site shall continue and the results of the survey codified at headquarters. Consulting Engineers should also be engaged, and a programme of survey for the period

November 1948 to May 1949 prepared in consultation with them. The exact nature of the programme will depend largely on the results of the survey during January—May, 1948.

During the 1948-49 dry season (November 1948 to May 1949) the further programme of survey decided on as above shall be carried out and all survey work completed so that actual construction work may be put in hand as soon as Contractors are engaged and adequate supplies of men and material ensured. The Consulting Engineers should also be working on plans for construction of dams, etc.

The plans should be finalized during the rains of 1949, tenders for work invited on a global basis and all preparations completed so that construction work may start towards the end of 1949.

The completion of this work will ensure an initial supply at an early stage of 20,000 kws. at an estimated cost of ·48 anna a unit delivered (not distributed)—which is less than the fuel cost alone of diesel generation—and an ultimate supply of about 140,000 kws. at an estimated cost of ·4 anna per unit delivered (not distributed).

A survey of the Saingdin Falls in Akyab District shall also be undertaken during this period in conjunction with the plan for setting up a Pulp and Paper Factory and Chemical Works in this area. A preliminary survey shall be undertaken during the 1947-48 dry season and the final survey completed during the following dry season.

During the period of this Plan, a start shall also be made in assessing fully the hydro-electric power resources of Burma, the utilization of its rivers, flood and soil-erosion control, etc., and a comprehensive long-term plan evolved in consultation with, or with the active assistance of, experts. This Plan shall also provide for the electrification of rural areas, Railways and industries.

Electric Supplies in Towns.

An electric supply from State-owned generating stations shall be introduced in the following towns in accordance with the programme given below :—

1948.

Mandalay.
Moulmein.
Maymyo.
Prome.
Pegu.
Myingyan.
Meiktila.
Shwebo.
Toungoo.

1949.

Bassein.	Magwe.
Henzada.	Maubin.
Tharrawaddy.	Yaméthin.
Hsipaw.	Pyinmana.
Kyauksè.	Thayetmyo.
Lashio.	Pyapôn.

Sufficient materials and generating plant is available for the purpose. Attempt should be made to supply electricity to Taunggyi, Kalaw, Bhamo and Myitkyina from State-owned source.

Notwithstanding the programme given above, efforts shall be made to speed up as much as possible the progress of introducing electricity in towns.

Government shall consider the question of supplying electric plant to Municipalities, and if sufficient number of plants are available in the Public Works Department Stores, the Municipalities shall be supplied with plant on terms of repayment of the value to Government in instalments.

Training of Engineers.

To supply the necessary engineering personnel capable of planning, erecting, maintaining and extending the complex inter-connected transmission and distribution system necessary for the future economy of Burma, plans have been formulated for an adequate annual intake of trainee engineers, and the scheme of training should be in operation before the end of 1949. The future need for engineers trained in the specialist field of electricity supply will be great and the only place they will be able to secure such training inside the country will be in the Government Electricity Supply Service itself and adequate provision must be made for this.

VIII.—LABOUR.

The Labour policy of Government shall be directed towards the following ends—

(*a*) to create harmony and understanding between employer and employed, in order that the task of rehabilitation and the evolution of a planned economy in Burma may proceed with the minimum of hindrance and interruption ;

(*b*) to ensure to labour a fair wage and a reasonable standard of living, fair and equitable conditions of work and employment (including adequate welfare facilities at the centres of work and outside, housing, safety measures, holidays with pay, medical leave and attention, adequate compensation in the case of accidents arising out of employment, etc.) ; such measures to be enforced by means of an efficient system of inspection ;

(*c*) to minimise disputes and hours of work lost through strike by setting up adequate conciliation and arbitration machinery ;

(*d*) the gradual elimination of unemployment and redistribution of the available labour force in Burma with a view to their employment in the most productive industries and in a manner best suited to the economy of the country ;

(*e*) the training and education of labour, both skilled and unskilled, with a view to fitting them for all types of industries in Burma ; if necessary, the aid of Industrial Psychologists should be obtained to see for what vocation people, especially boys and girls about to leave school, are really fitted.

(*f*) the introduction of industrial methods and processes best suited to the genius of the people, thus ensuring that indigenous labour is employed to the fullest extent in all branches of industry and wastage avoided through doing work in a manner unsuited to the national character of the people ; and

(*g*) social insurance, including unemployment insurance.

The evolution of a fully Socialist economy in Burma will ultimately remove the vast majority of the causes of friction and misunderstanding between employers and employed. In the process of evolving such an economy however private enterprise will continue in many important sectors and it is the determination of Government to minimise friction and strife during the transitional period by setting up adequate machinery for conciliation and arbitration. Steps have already been taken in this direction by the amendment of the Trade Disputes Act and providing for the appointment of Conciliation Officers, and an Industrial Court with powers to enforce its decisions. These provisions will it is hoped prove adequate, but their working will be watched closely and the Labour Legislation Committee will also it is hoped submit recommendations on their adequacy and whether further extension is necessary.

The Committee will also submit recommendations for such new legislation as may be required to implement the objectives set out in (*b*) above, and action on these recommendations must be completed during 1948.

In order to ensure the observance of the provision the existing Labour Legislation and to provide for the further legislation proposed, it is essential that the Factories Inspectorate should be strengthened by the provision of a sufficient number (not less than four), of well-trained and adequately remunerated Inspectors. This is a matter calling for immediate attention.

The effective employment of the available labour force in Burma by directing them to spheres of work best suited to the evolution of a planned economy and preparing them for the work involved by adequate vocational training, both whole-time and part-time, requires a complex machinery. This machinery is being evolved and no time should be lost in completing its structure. The execution of even some of the projects described in Section IV will require an adequate labour organization both for purposes of directing labour to the site of work and looking after their health and welfare. The most important part of the mechanism for achieving this is the Labour Exchange, in regard to which a start has already been made in Rangoon where it is doing excellent work. The machinery must however be extended with particular reference to the development of the various industries and hydro-electric works planned for the years

1948 and 1949. A series of Labour Officers and Employment Exchanges must therefore be established in Burma in accordance with the programme given below :—

Four Labour Offices should have been established one each in Yenangyaung, Mandalay, Toungoo and Tavoy by the end of 1947. The offices in Mandalay, Toungoo and Tavoy shall be developed into Employment Exchanges by June 1948.

One Labour Office shall be established at Shwegyin early in 1948, if by then the hydro-electric survey of the Bawgata-Yunzalin Area acquires sufficient momentum and enough labour both skilled and unskilled to justify the office is required at site.

The November 1948—May 1949 dry season should see intensified activity in this area, and much larger numbers of workers will be necessary. A Labour Office may require to be opened at site, and workers chosen carefully so as to avoid wastage through sending of unsuitable men ; they would also have to be prepared for rough living. This portion of the scheme can be handled by the Rangoon Employment Exchange—which will require expansion—provided an organization for receiving the labour exists near the site. A Labour Superintendent and Welfare Officer responsible for the engagement of labour and their housing and welfare would also have to be appointed. The Labour Officer and the Labour Superintendent will work in co-operation, but the duties of the Labour Officer shall be confined to provision of suitable labour and its transport from Rangoon, while the Labour Superintendent will look after employment and welfare at site.

If the Kalewa coal-fields scheme materializes, a Labour Office would require to be installed at Kalewa, the time depending on the commencement of activities in the area. Preliminary arrangements can be handled by the Mandalay Exchange, which should be well-established by November 1948.

A Labour Office would also require to be opened in Akyab in conjunction with the Paper Factory and Chemical Works projected for that District, the time depending on the commencement of activities in regard to the Paper Factory.

One Labour Office shall be established at Moulmein by September 1948, and developed into an Employment

Exchange later. During the second half of 1948, six more Labour Offices capable of being developed into Exchanges shall be considered for Meiktila, Pegu, Prome, Taunggyi, Bassein and Myingyan. Not less then six officers to be in charge of Exchanges should be sent for training in India during the second half of 1948.

The Rangoon Dock Labour Registration Scheme should be put on a proper basis. It may require expansion during 1949.

The examination of the methods and processes employed in industry in Burma with a view to modernizing them and adapting them to the national genius of the people is a matter which must receive the urgent attention of the Industry and Labour Department. This should be investigated fully and policy formulated during 1948.

The training of Labour and skilled workmen is dealt with under Technical Education. It must be undertaken in close co-ordination with the Labour and Industries Departments.

In regard to wages a Wages Council Act should be enacted during 1948 and four Wages Councils shall be established during 1948-49, the industries to be covered being chosen by the Labour Department. This will also necessitate the establishment of an Inspectorate to ensure compliance with the decisions of the Councils.

The Statistical Section of the Labour Department shall be strengthened during the first half of 1948, so that adequate data for employment, wages, etc., is available. The work of this Section will require to be co-ordinated with the work of the Statistical Department of the Economic Planning Board.

A Labour Gazette giving information in regard to employment and conditions of labour, etc., should be published during the first half of 1948, and developed into a regular publication during the second half of 1948.

With independence, Burma will become a member of the International Labour Organization and much work will be entailed not merely in providing information to the Organization and preparation of material for the I.L.O. Conferences, but also in giving effect to the decisions of the I.L.O. and ensuring that Burma standards of work and employment are up to the international standards prescribed by the I.L.O. A separate section to deal with this work should be added to the Labour Department during the first half of 1948.

The Labour Department should also, consider in conjunction with the Rangoon University, the Education Department, the Technical Education Department and the Industries Department a scheme for the registration of technical and scientific personnel in Burma.

Social insurance (including unemployment insurance) is a matter of utmost importance, but the organization and financial resources that will be demanded makes it of necessity a long-term measure in Burma. The subject must however be investigated fully during the two-year period of the Plan, and a long-term plan evolved with the assistance of an actuary appointed by Government.

IX.—TRANSPORT AND COMMUNICATIONS.

The extent to which the transport system of Burma has been disrupted by World War II can be gauged from the following figures in regard to railways :—

Particulars.	Position in 1939-40.	Position in 1946-47 (Oct.—Sept.)
Mileage, single track (Route)	1,852	1,498
Mileage, double track (Route)	207	12
Annual consumption of Coal in tons	191,977	77,000
Number of passengers carried per week	361,738	154,053
Net ton-miles per week	12,355,154	5,731,650
Passenger-miles per week	8,637,596	3,936,309
Number of freight train locomotives—Steam ...	55	32
Number of passengers train locomotives—Steam ...	110	42
Number of shunting locomotives—Steam	41	27
Number of passenger coaches (Cars)	718	225
Number of freight cars of different categories ...	8,317	4,815

Out of 199 bridges to be repaired, only 60 have so far been completed and some of the major bridges have not yet been touched. Urgent efforts must therefore be made to restore railway communications to normal as rapidly as availability of materials and technical personnel will permit.

Road transport also requires to be developed on a planned basis, and new roads opened out, especially to the non-accessible areas (*e.g.*, Arakan, Chin Hills, Kachin Hills, etc.). In particular the construction of the following roads which has already been decided on shall be commenced as early as possible during the period of the Plan :—

(1) Prome-Sandoway Road *viâ* Taungup Pass.
(2) Waw-Sittang Road.
(3) Minbu-Arakan Road *viâ* An Pass.

In addition, roads into the Chin and Kachin Hills and the Salween area shall be developed.

The disruption caused in Inland Water Transport can be seen from the fact that the gross tonnage of vessels (excluding bulks and landing pontoons) was only 40,481 during 1947 as against 105,257 tons during 1939. Government has already decided on a policy of nationalization of this service, and this matter shall be examined carefully and the policy of nationalization implemented as soon as possible. The building and repairs of Dockyards, Port facilities, etc., shall also be expedited.

The development of air transport in Burma on a nationalized basis shall also be considered carefully and a business-like plan evolved as soon as possible.

Postal communications shall also be restored to pre-war level as soon as possible. There are at present only 400 Post Offices in Burma as against 653 during 1939. Post Offices are being re-opened at the rate of 50 per year and this rate of progress shall be maintained and, if possible, improved upon.

Burmanisation of the Services in the Transport and Communications Departments has not so far been satisfactory. Immediate measures should be taken to speed up the progress of Burmanisation in these Departments where non-Burman nationals are in large majority.

X.—FINANCE.

The financial reconstruction of Burma and the setting of her finances and credit on a firm basis are of course vital to the success of any planned economy, and efforts in this direction will continue unabated. Government's financial policy shall also be brought in line with the general policy of State socialism, and in matters of financial administration every effort shall be made to eliminate delay and red-tape and to adapt the system to the needs of a planned economy.

The Burma State Bank already decided on by Government as a State enterprise shall be opened and start work in January, 1948. Arrangements shall also be completed to undertake the printing of currency notes in Burma by July 1948, and for this purpose the factory belonging to Messrs. De La Rue and Company shall be fully established before that date.

The decimal system of currency shall also be introduced in Burma as soon after the date of independence as possible. For this purpose, arrangements with the Government of India for the minting of decimal coins shall be completed by March 1948, and the new currency introduced by June 1948, at the latest. The question of minting of coins in Burma also shall be investigated as early as possible.

The re-organization of the Audit Department is also a matter of extreme urgency and shall be examined, a firm decision arrived at and the task completed by June 1948. This is extremely important, for the working out of the present Plan of Economic Development shall be greatly handicapped—may in fact be jeopardised—without an efficient system of audit and accounting free from the red-tape and delays that have characterized it hitherto.

Our High Commissioners and Ambassadors—particularly those in the United Kingdom, India and Pakistan—shall take over as soon as possible such of the duties as have hitherto been performed on behalf of the Government of Burma by the High Commissioner for India in the United Kingdom, the Burma Office and by other authorities. This will result in considerable savings to Burma, particularly if functions in regard to the procurement of stores are taken over by our own representatives. Arrangements in this respect should therefore be completed with the minimum of delay—in any case, not later than April 1948.

The Savings Campaign already decided on by Government shall be pursued with energy and backed up with intensive propaganda against luxury expenditure and locking up of valuable capital in the form of jewelleries and other productive hoards.

Government shall also consider the introduction during 1948 of compulsory life insurance by Government servants. Such a scheme will in addition to making provision for old age and for widows and families of deceased Government servants provide a source of finance for developmental purposes. The Scheme shall in the first instance cover Government servants, but later extended to employees of quasi-Government organizations.

XI.—SURVEY OF NATURAL RESOURCES.

A.—Mineral Resources.

A scientific and accurate assessment of the mineral resources of Burma is essential to the evolution of a comprehensive, fully co-ordinated policy of economic developments. The means for such an assessment were sadly lacking in the past and this deficiency must be remedied as early as possible. It is important to see that not only Burma Proper which is more accessible but also the other Union States should get their share of any survey of the natural resources that may be made.

The discovery, appraisal and wise utilization of Burma's mineral resources shall be undertaken through two technical Departments, *viz.* :—

(i) The Geological Department.
(ii) The Mines Department.

These Departments shall be housed in the same building, share a common reference library, common laboratories and a common reproduction section and drawing office. The functions of the Mines Department shall include the administration of the Mines Act, ensuring that individual mineral deposits are worked efficiently and in accordance with Government's mineral concession policy, and the appraisal of individual unworked mineral deposits, whether already known to exist or discovered in the course of the systematic geological mapping of the country by the Geological Department. The primary duty of the latter Department is the discovery and developnent of the mineral resources of the country. Systematic geological mapping is the basis upon which such discovery rests, and it shall therefore be the duty of the Geological Department to arrange a comprehensive programme of mapping, and carry it out as rapidly as may be consistent with efficiency and reliable results. The functions of the Department shall in addition comprise—

(i) Engineering Geology (including geological advice on all kinds of engineering projects, *e.g.*, hydro-electric projects, construction of roads and railways, etc.) ;
(ii) Water Resources—the location and appraisal of available sources ;

(iii) Advice on Soils and Soil Erosion—in co-ordination with the Agriculture and Irrigation Departments ;

(iv) Appraisal of Mineral Resources—in co-operation with the Mines Department ;

(v) Petroleum Development and Technology ;

(vi) Seismology ;

(vii) Mineral Policy—advice on all aspects of mineral policy other than the working of individual mineral deposits (excepting petroleum) ;

(viii) Mineral Statistics—their collection, digesting and publication ; and

(ix) Information—dissemination of technical information regarding the geology and mineral resources of Burma (including provision of library facilities, analysis and assaying of mineral substances, identification of rocks, minerals and fossils, and availability and suitability of mineral substances for specific purposes).

The efficient discharge of the above functions by both the Geological and Mines Departments can only be undertaken if they are adequately staffed, equipped and accommodated. The Geological Department shall accordingly be organized with an ultimate strength of twenty geological officers, one chemist and a curator, housed and equipped adequately. Proposals for the Mines Department shall also be worked out as soon as possible.

The objective in regard to both Departments is to build up as rapidly as may be consistent with professional efficiency two Departments staffed entirely by the indigenous races. With a view to achieving this objective not less than five state scholarships in Geology shall be awarded each year, and a suitable number for the study of Mining. The students and the courses of studies must be chosen in close consultation with the Director of the Geological Department and the Head of the Mines Department ; this is essential to ensure that the students selected are of the right type in regard both to academic and other qualifications ; and that the courses of studies are arranged and the places of study selected in a manner consistent with the adequate and balance evolution and organization of the Department themselves.

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The academic training of a geologist is however complex, and a full course takes four years. Moreover, a newly-qualified geologist must acquire experience in field-work before he can develop into a competent and useful officer. Pending the return of the State Scholars therefore the Geological Department shall (in addition to its present strength) be staffed by five officers on short-term contract, with the purpose both of organizing the Department on a proper basis and of implementing an immediate programme of geological survey. The five officers shall be recruited as follows :—

(i) *Deputy Director*.—A Geologist with wide general experience. This officer is essential not merely for the technical work described below but also to relieve the present Director of routine so that the latter can concentrate on organization and the writing of technical monographs on certain aspects of the geology of Burma in respect of which he alone possesses an adequate knowledge.

(ii) *Economic Mining Geologist* to make a comprehensive general survey of Burma's mineral resources and advise Government as to which deposits should be more closely appraised. He must have considerable experience in the field appraisal of mineral deposits, and sufficiently active to undertake a good deal of field-work.

(iii) *Engineering Geologist* with special experience in advising on the geological aspects of engineering projects and water resources.

(iv) *Two Field Geologists* to resume the systematic geological survey of Burma and carry out the field training of newly qualified officers. One of the officers should have special experience in the practical applications of photo-geology.

On the recruitment of the above technical officers, the following short-term programme of survey and development shall be undertaken :—

(*a*) The Deputy Director shall carry out geological traverses in the Upper Chindwin District and in the Dawna Range in order to determine the regions in which the resumption of systematic geological mapping will be most likely to yield profitable results.

(*b*) The Economic Mining Geologist shall make a comprehensive general appraisal of Burma's mineral estate and advise which deposits should be more closely appraised by the Mines Department.

(*c*) The Engineering Geologist shall be deputed to make a detailed study of the sites of the main works of the proposed Bawgata-Yunzalin and Saingdin Hydro-electric Projects. He will also advise on other problems incidental to the execution of the Plan of Economic Development—*e.g.*, alignment of new roads—and the location, appraisal, development and utilization of ground water resources. This latter function is of the utmost importance to Burma where a supply of potable water constitutes a serious problem in many areas, and Government shall consider as soon as the necessary personnel and equipment become available the setting up of a combined Ground Water Board for the above purpose.

(*d*) The two field geologists shall take up systematic geological mapping in those regions which the traverses carried out by the Deputy Director are indicated to be most likely to repay attention. They will form the nucleus of two field parties to which returning State Scholars will be posted on first appointment to the Department. After an initial period of instructional field—work, the new recruits will undertake independent field—work under the general direction of the officers in charge of the two field parties. As additional officers become available the field parties will first be strengthened and then split up until eventually there will be four field survey parties working in different parts of Burma.

The fulfilment of the above programme is conditional on suitable recruits to the proposed short-term appointments being available. The present strength of the Geological Department comprises of one Director and one Senior Geologist, and it is essential that this strength is increased as soon as possible. In the meantime, the following programme of work shall be carried out :—

(*a*) The work of restoring the great mass of unpublished geological records and maps lost during the Japanese occupation shall be completed as soon as possible. This is being undertaken at present by a temporary staff working at the headquarters of the Geological Survey of India at Calcutta, by copying from the records of the latter.

(*b*) The task of bringing Burma's Petroleum Concession Rules and Oilfield Administration fully up-to-date and in accordance with the best world practice shall be completed by early approval of the Petroleum Concessions Rules and Directions already drafted by the Director,

Burma Geological Department, and the re-draft of the Burma Oilfields Manual he is about to embark upon.

(*c*) The Director shall also compile within the period of his office a series of confidential monographs on the principal oilfields of Burma. This is of extreme importance, as all the valuable records relating to the Oilfields were completely destroyed at the time of the British evacuation from Burma in 1942 and the present Director is the only person possessing the requisite knowledge to replace them adequately.

(*d*) A Statistical service for the collection, digestion and publication of mineral statistics shall be organized on an adequate and up-to-date basis.

(*e*) Geological work cannot be effectively carried out unless a large amount of reference matter is available for consultation and an adequate technical library shall therefore be assembled as soon as possible. A capital sum of Rs. one lakh shall suffice for the purpose, but the entire amount will not be required at once. An immediate grant of Rs. 5,000 shall be made.

(*f*) The Chemical and other technical laboratories shall be re-opened and equipped as soon as the Geological Department is in a position to resume active operations. Arrangements shall be initiated to provide suitable accommodation for the laboratories and headquarters of the Department.

(*g*) Firm orders shall be placed with the minimum of delay for equipment likely to be required for field operations (*e.g.*, tentage, petrological microscopes, clinometers, cameras, etc.). A grant of Rs. 20,000 shall be made to cover immediate requirements.

(*h*) Finally, the Director, Geological Department shall submit as soon as possible for the consideration of Government a clearly formulated and comprehensive statement of mineral policy.

B.—Other Resources.

Study and survey of the other natural resources shall also be undertaken during the period of the Plan, particularly in respect of agriculture, power and raw materials other than those which will come within the scope of Geological Survey. These studies shall be undertaken so far as possible by the Departments concerned—*e.g.*, Agriculture and Electricity Departments in respect of agricultural and

power resources—but the data collected will require to be co-ordinated by the Economic Planning Board which may have to conduct surveys and investigations of its own to supplement the information. This co-ordination is of great importance, for without it the result of the surveys and studies will not be capable of making their full contribution to economic planning. Study and survey of the man-power resources of Burma must also be given due and careful attention, with reference to long-term planning.

XII.—ECONOMIC RESEARCH.

Concurrently with the conduct of the survey of the natural resources of Burma, investigations must be conducted into the economic needs of the country so that the long-term plan of economic development may provide for the evolution of a balanced economy covering all sectors of the life of the people. The Economic Planning Board shall therefore organize and carry out adequate measures for economic research, with the assistance of such experts and economists as may be necessary for the purpose.

Economic Research shall consist of—

(*a*) Short-term Research,
(*b*) Long-term Research, and
(*c*) Market Research into foreign demand for the important products of the country.

(*a*) *Short-term Research* will include compilation and analysis of the detailed statistical data required for the various projects included in this Plan. The results obtained will also be useful for long-term research.

(*b*) *Long-term Research* will centre round the National Income of Burma. National Income figures are extremely important because they provide a general reference map for all our economic plans. In the same way as it is not possible to discuss the mineral resources of a country without a geological map, it is not possible to discuss economic plans and assess their repercussions on the various sectors of the economic system without National Income estimates. Thus, for instance, the Budget of a given year cannot be fully appreciated unless we know roughly such quantities as the taxable capacity of the country, the distribution of total tax into direct and indirect taxes, the effect of various taxes on different industries, etc. Furthermore, accurate national income figures have to-day become the sign of a civilised nation.

National Income analysis inevitably leads us to research into the overall facts of our economy, into the quality and quantity of our land, labour and capital. Thus the Economic Research Section will prepare the grounds for conducting our next Population Census at the earliest possible date and will in the meantime investigate our population age structure, net reproduction rate, etc., by means of sample analysis. It will also estimate our overall capital requirements at the rate of investment suggested in this Plan.

Accurate figures for National Income can only be obtained by very long periods of continuous research, even when all the data required are accessible. Our National Income figures for many years to come will be subject to a fairly large margin of error and each year's estimate will have to be revised to make it more accurate. But this long and tedious search for accurate figures is necessary since the degree of efficiency of economic planning directly depends on the degree of the accuracy of these figures.

(*c*) As for *Market Research* an economic statistician shall investigate foreign demand, particularly with regard to the quality of products and prices offered. He will become invaluable when later the possibility of stabilising the prices of our main agricultural products is considered.

During the two years covered by this Plan, the Research Section of the Economic Planning Board will operate under severe handicaps, particularly in view of shortage of Burmese economists and statisticians and the scarcity of really good foreign economic statisticians. Its progress will be slow, and it will have to assume responsibility for research which should properly be carried out by other Departments of Government. It will however prepare the ground for research on a large scale, and the separation of its present functions and their assignment to the appropriate Departments of Government. Only thus will the Economic Planning Board be able to concentrate on its proper functions—the analysis and collation of material provided by the different Departments of Government and research and surveys which cannot be undertaken departmentally.

G.U.B.C.P.O.—No. 15, M. of N.P., 13-7-48—2500 + 500—I.

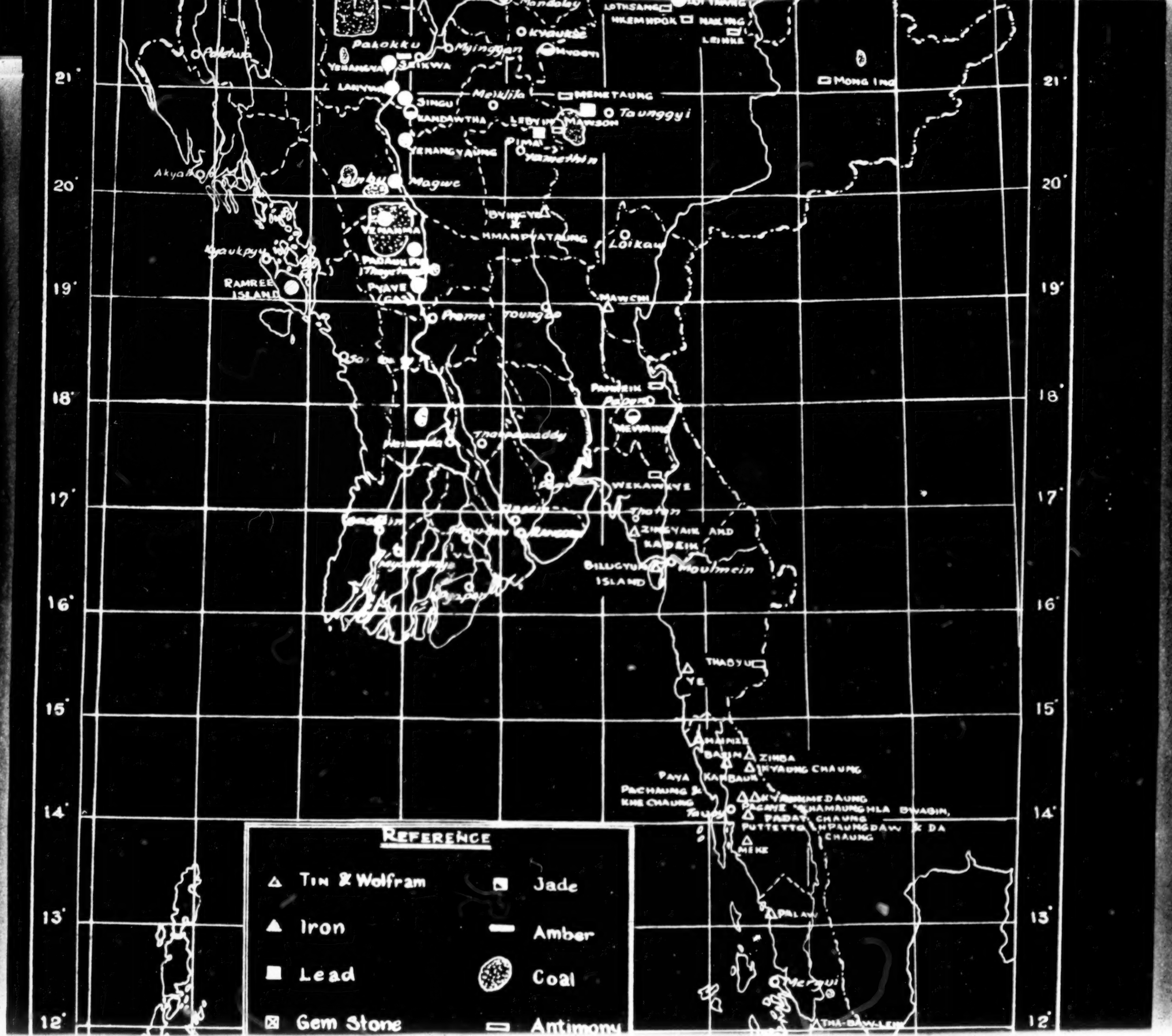
MINERAL DEPOSITS OF BURMA

Scale 1 inch to 60 miles

92° 93° 94° 95° 96° 97° 98° 99° 100° 101°

28° 27° 26° 25° 24° 23° 22° 21° 20°

Putao
Hukaung Valley
Tawyi Hka
Kadaup Hka
Lason
Mahok
Pahok
Myitkyina
Maingkang
Kyabin
Kyaung-ngo
Banmauk
Katha
Indaw
Mawlaik
Uyapan
Maingnin
Kunghka
Pinkan
Mogok
Ashio
Falam
Chin Hills
Kyaukkedet
Taungbyinnge
Sadaw
Tankyang
Kani
Shwebo
Thazi
Alon
Sagaing
Mandalay
Sagyin
Tuywa
Heum Hsai State
Loi Sar
Loi Tawng
Nakung
Leinke
Mong Ing
Pakokku
Myingyan
Yenangyaung
Magwe
Meiktila
Meiktaung
Taunggyi
Singu
Kandawtha
Akyab
Loikaw


Paokku
Myingyan
Kyaukse
Mogok
Mong Ing
Meiktila
MENETAUNG
Taunggyi
Singu
Magwe
Akyab
Kyaukpyu
RAMREE ISLAND
Pyawbwe
Prome
Loikaw
Mawchi
Thayetmyo
Pakokku
Moulmein
BILUGYUN ISLAND
THABYU
YE
ZIMBA
PAYA
PACHAUNG &
KHE CHAUNG
PADAT CHAUNG
PUTTETTO
MIKE
PILAW
Mergui
THA-BAW-LEIK
REFERENCE
Tin & Wolfram
Iron
Lead
Gem Stone
Jade
Amber
Coal
Antimony
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19°
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15°
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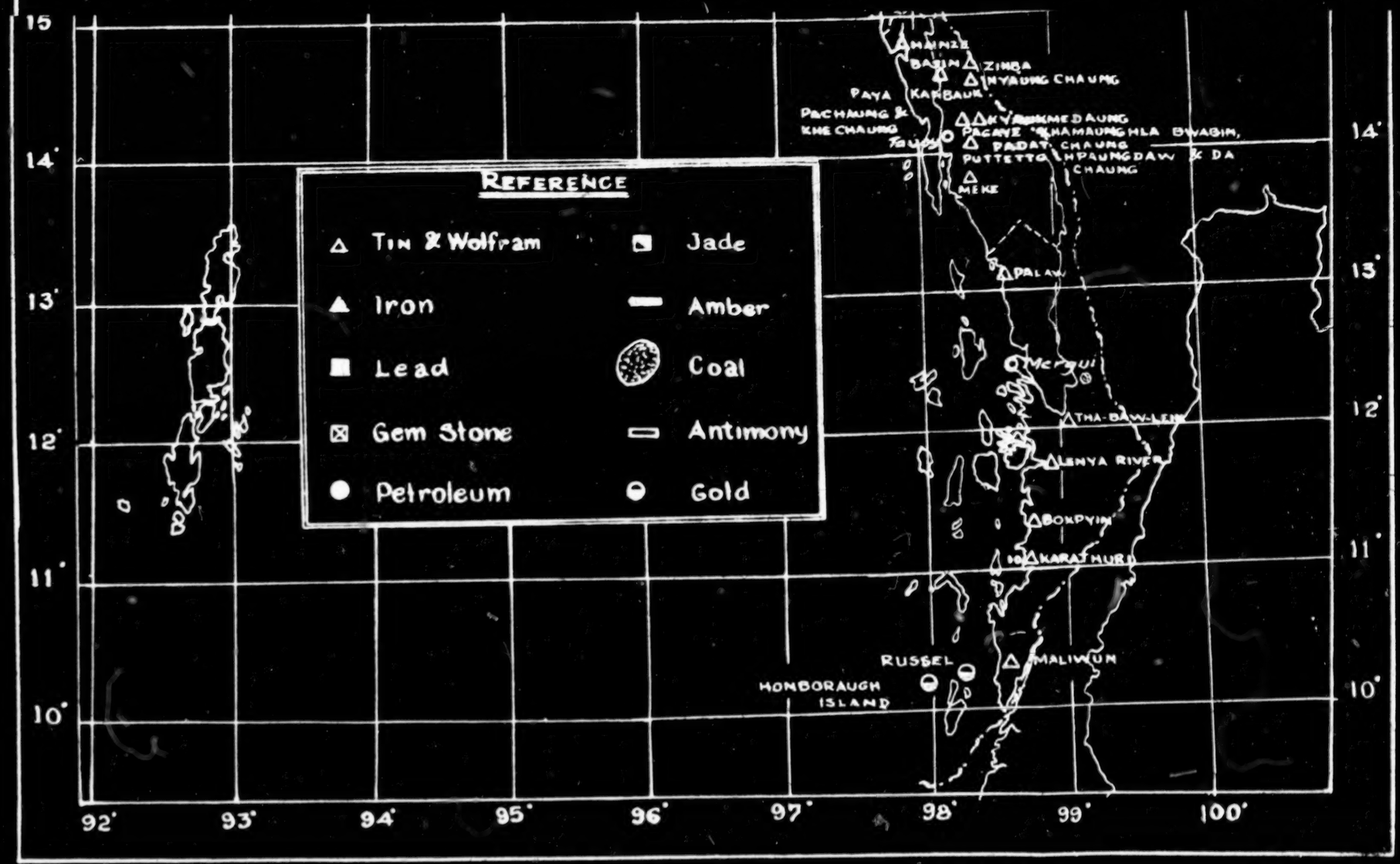
REFERENCE
Tin & Wolfram
Iron
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Petroleum
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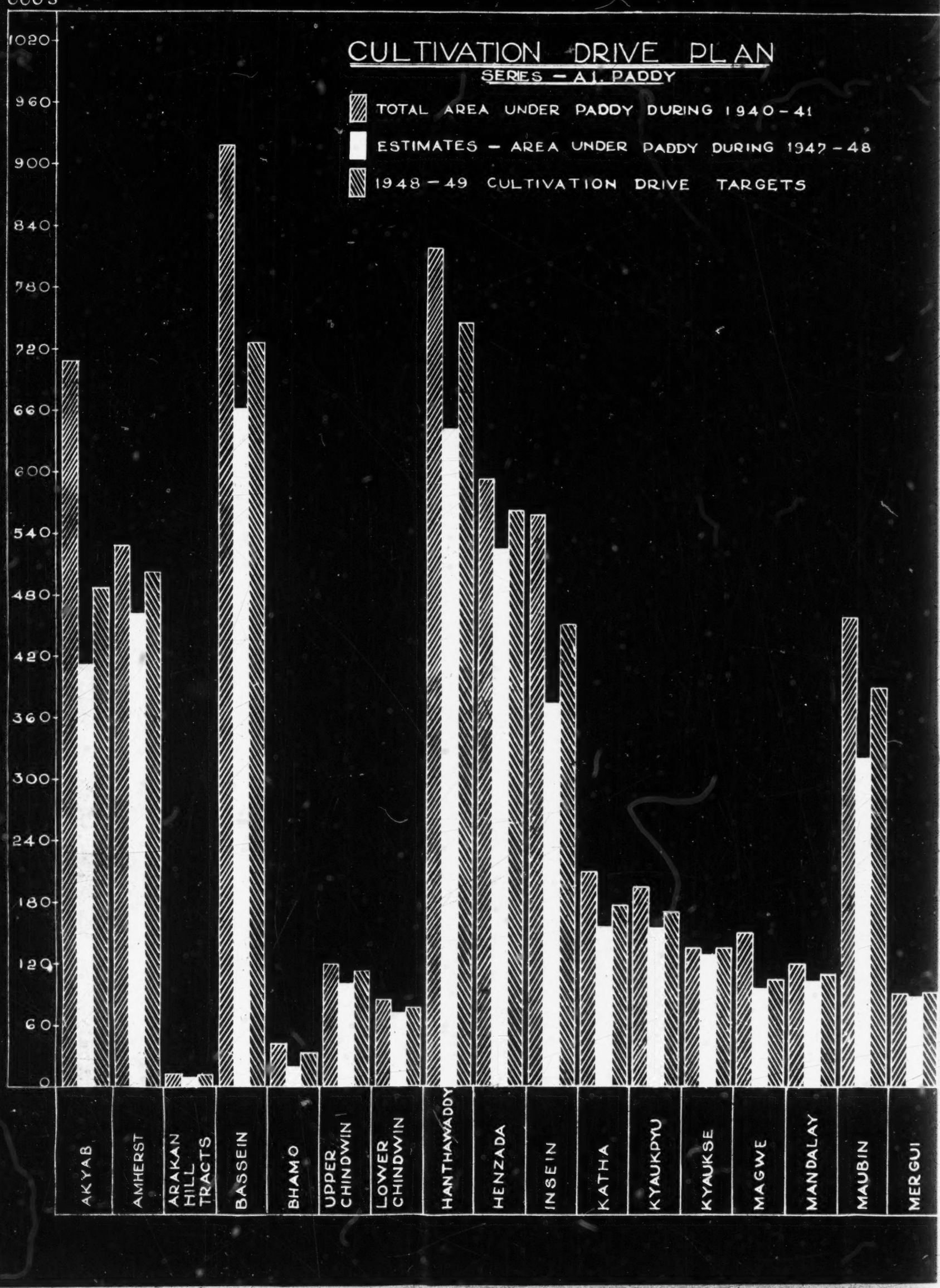
AMAINZE
BASIN
ZINBA
MYAUNG CHAUNG
KARBAUK
PAYA
PACHAUNG &
KHECHAUNG
PACAYE
PADAT CHAUNG
PUTTETTO
MEKE
PALAW
Mergui
THA-BAW-LEIK
LENYA RIVER
BOKPYIN
KARATHURI
RUSSEL
MALIWUN
HONBORAUGH
ISLAND

CULTIVATION DRIVE PLAN

SERIES – A1. PADDY



MYAUNGMYA
MYINGYAN
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SHWEBO
TAVOY
THARRAWADDY
THATON
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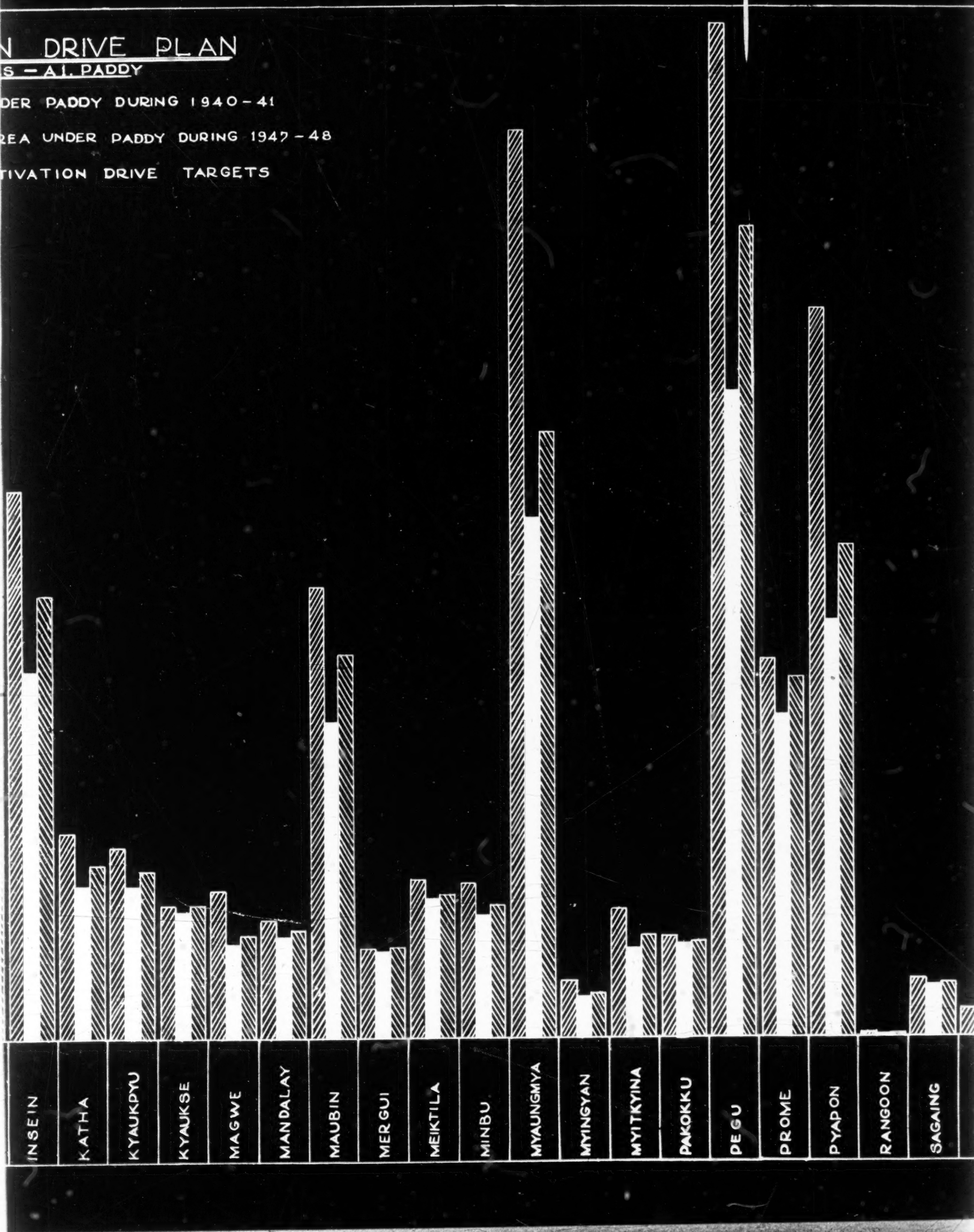
S – A1. PADDY

DER PADDY DURING 1940 – 41

REA UNDER PADDY DURING 1947 – 48

TIVATION DRIVE TARGETS



ACRES
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AKYAB

AMHERST

ARAKAN HILL TRACTS

BASSEIN

BHAMO

UPPER CHINDWIN

LOWER CHINDWIN

HANTHAWADDY

HENZADA

INSEIN

KATHA

KYAUKPYU

KYAUKSE

MAGWE

MANDALAY

MAUBIN

MERGUI

MEIKTILA

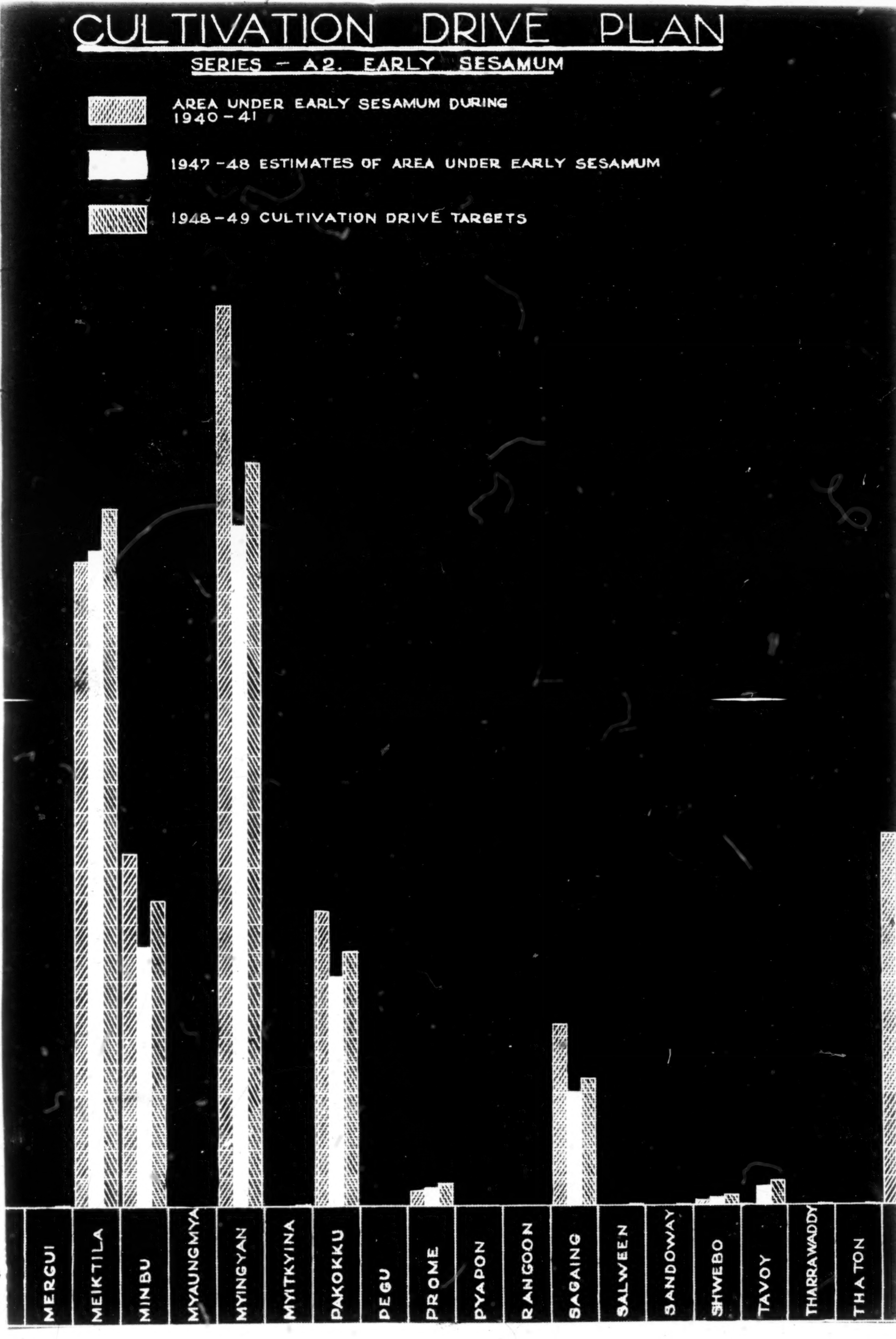
CULTIVATION DRIVE PLAN

SERIES – A2. EARLY SESAMUM

AREA UNDER EARLY SESAMUM DURING 1940 – 41

1947 – 48 ESTIMATES OF AREA UNDER EARLY SESAMUM

1948 – 49 CULTIVATION DRIVE TARGETS



RIVE PLAN

SESAMUM

URING

NDER EARLY SESAMUM

RGETS

ACRES
000'S

240
228
216
204
192
180
168
156
144
132
120
108
96
84
72
60
48
36
24
12
0

YE ME THIN

TOUN GOO

THAYETMYO

THATON

THARRAWADDY

TAVOY

SHWEBO

SANDOWAY

SALWEEN

SAGAING

RANGOON

PYAPON

CULTIVATION DRIVE

SERIES – A3. LATE SESA

TOTAL AREA UNDER LATE SESAM 1940 – 41

1947 – 48 ESTIMATES OF AREA U

1948 – 49 CULTIVATION DRIVE T

ACRES 000'S

128
120
112
104
96
88
80
72
64
56
48
40
32
24
16
8
0

AKYAB
AMHERST
ARAKAN HILL TRACTS
BASSEIN
BHAMO
UPPER CHINDWIN
LOWER CHINDWIN
HANTHAWADDY
HENZADA
INSEIN
KATHA
KYAUKPYU
KYAUKSE
MAGWE
MANDALAY
MAUBIN
MERGUI
MEIKTILA

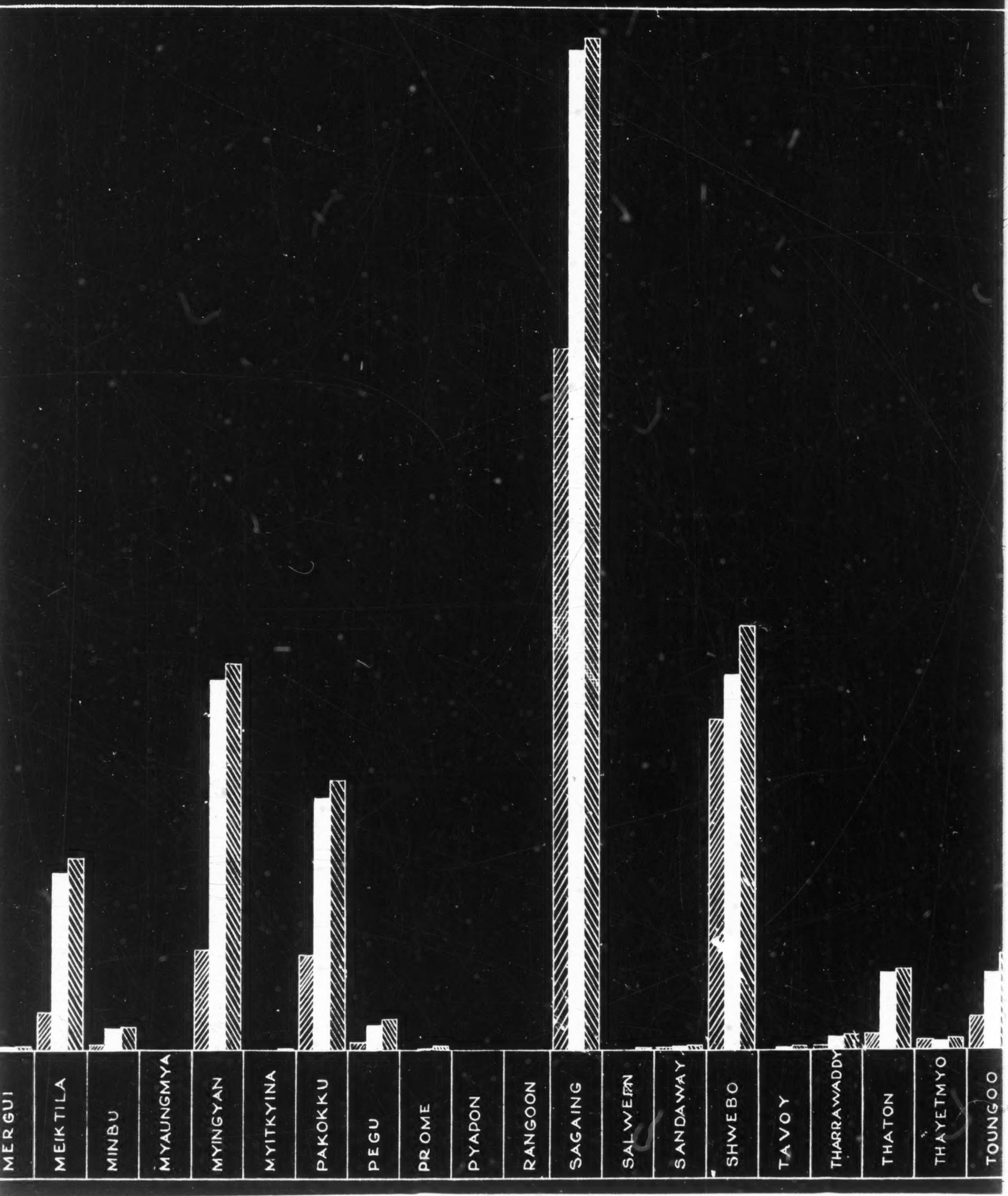
DRIVE PLAN

LATE SESAMUM

ATE SESAMUM DURING

OF AREA UNDER LATE SESAMUM

ON DRIVE TARGETS



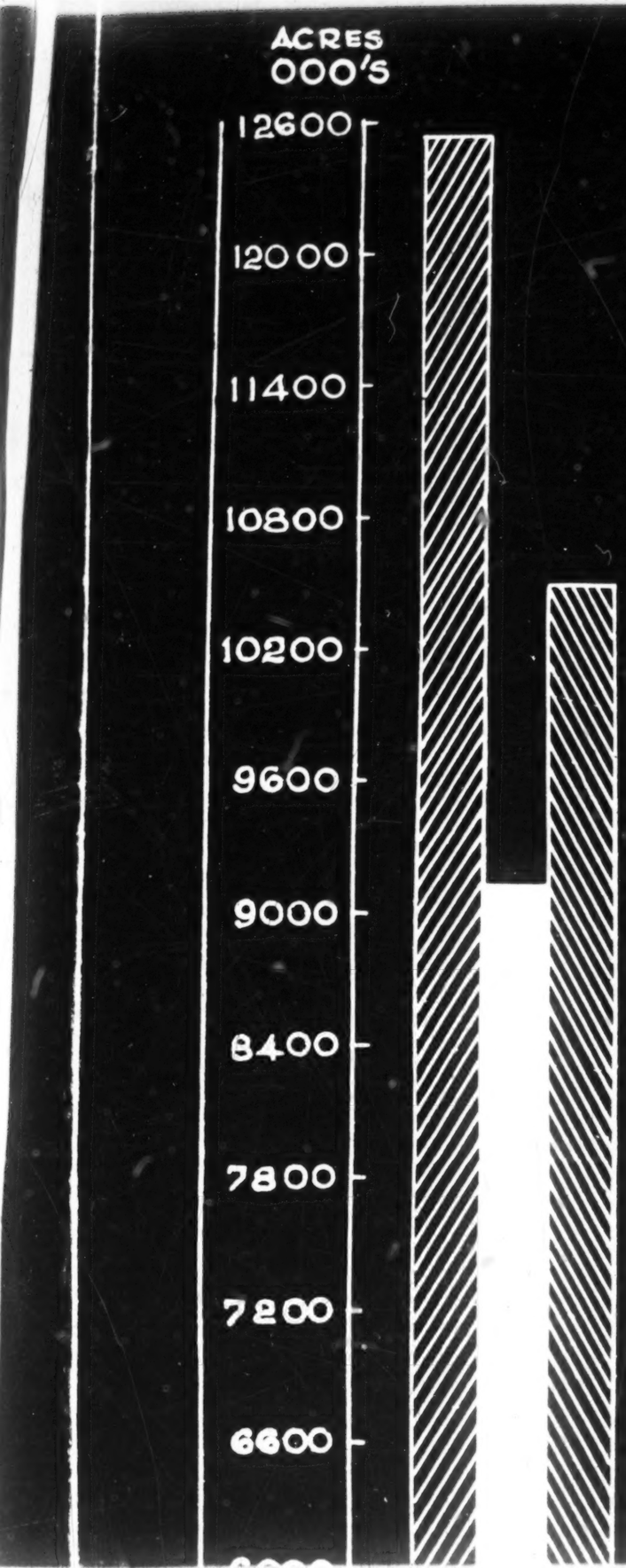
ACRES
000's

128 120 112 104 96 88 80 72 34 56 48 40 32 24 16 8 0

YEMETHIN
TOUNGOO
THAYETMYO
THATON
THARRAWADDY
TAVOY
SHWEBO
SANDAWAY
SALWEEN
SAGAING
RANGOON
PYAPON
PROME
PEGU
PAKOKKU

MUM

CULTIVATION DRIVE PLAN

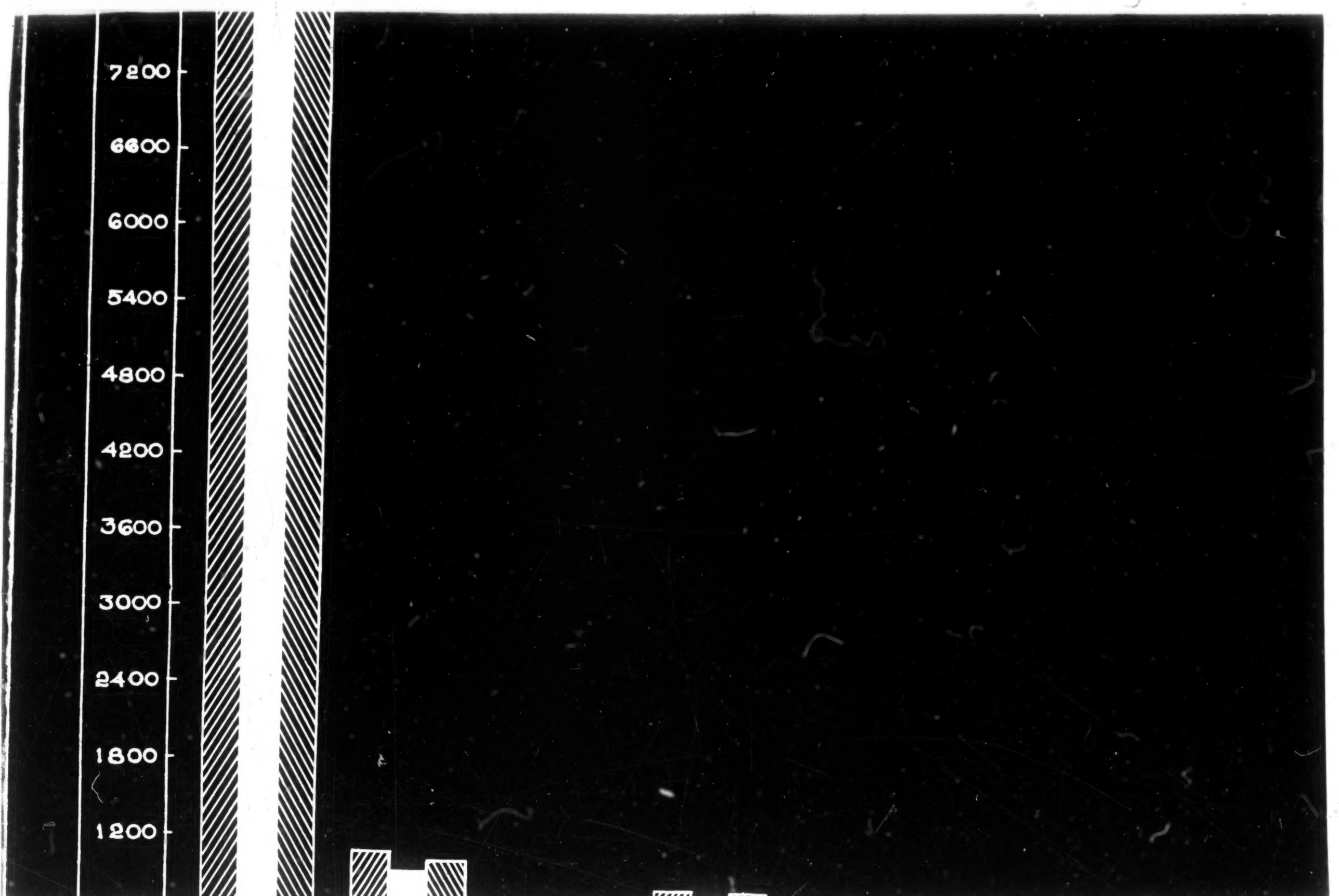


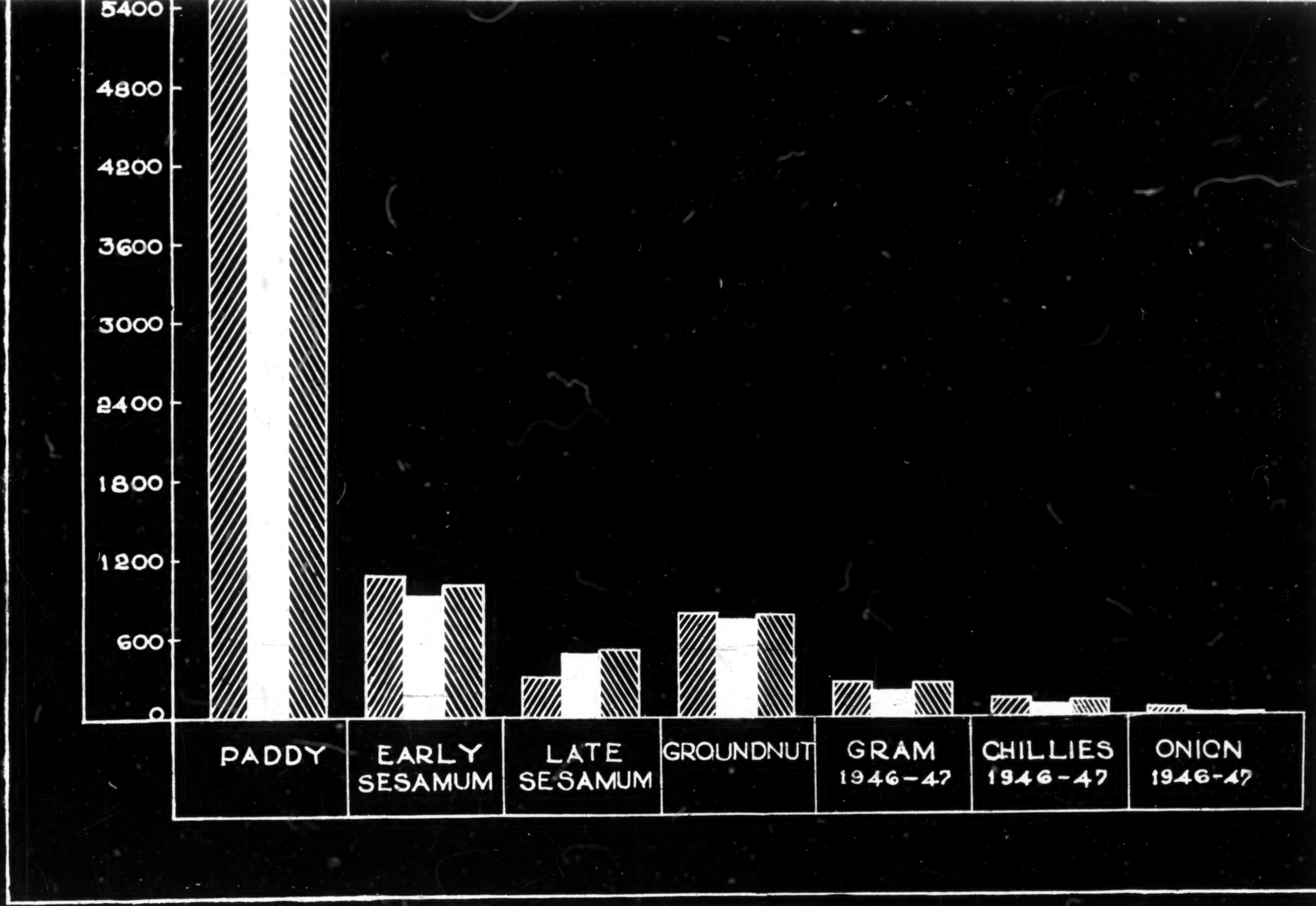
SERIES–A 8 MAJOR CROPS

1940–41 GRAND TOTALS OF CULTIVATED AREA OF MAJOR CROPS

1947–48 ESTIMATES OF TOTAL AREA UNDER MAJOR CROPS

1948–49 CULTIVATION DRIVE TARGETS


7200
6600
6000
5400
4800
4200
3600
3000
2400
1800
1200


5400
4800
4200
3600
3000
2400
1800
1200
600
0
PADDY
EARLY SESAMUM
LATE SESAMUM
GROUNDNUT
GRAM 1946-47
CHILLIES 1946-47
ONION 1946-47

T.S.